CERTIFICATION:

The following certification is made, as stipulated by 40 CFR 270.11(d) and referenced in the HSWA permit for this facility:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Howard Goldman
Environmental Manager

EnviroTrac
Environmental Services

June 30, 2012

Mr. Phillip Cole
Bureau of Case Management
New Jersey Department of Environmental Protection
401 East State Street
PO Box 28
Trenton, New Jersey 08625-0028

RE: Semi-Annual Groundwater Monitoring Report
NJPDES Permit NJ0028878
Hess Corporation – Port Reading Refinery
Port Reading, New Jersey

Dear Mr. Cole:

The Hess Corporation – Port Reading Refinery (HC-PR) submits with this letter the July 2012 Semi-Annual Groundwater Monitoring Report for the refining facility's No. 1 Landfarm, and the inactive North and South Landfarms (original and two copies for your staff are enclosed). This report presents the results of the monitoring and sampling events conducted in January and April 2012. The next monitoring and sampling events will be conducted in July and October 2012, and the results will be presented in the December 2012 report.

Should you have any questions or comments regarding the information submitted in this report, please do not hesitate to contact me at 609-387-5553. Should you have any questions or comments relating to the project, please contact John Engdahl of Hess Corporation at 732-750-6934 or Howard S. Goldman of Hess Corporation at 732-750-7735.

Sincerely,
EnviroTrac, Ltd.

David J. Carlson
Senior Project Manager
NJDEP Certification # 266010

Enclosure: Semi-Annual Groundwater Monitoring Report
Electronic Data Deliverable

Cc: Phillip Cole (NJDEP – BCM) – 3 Copies
Barry Tornick – USEPA Region II (w/enclosure)
H. Goldman – Hess Corporation (electronic)
J. Engdahl – Hess Corporation (electronic)
Project File

SEMI-ANNUAL GROUND WATER MONITORING REPORT
HESS CORPORATION - PORT READING REFINERY
NO. 1 LANDFARM
NORTH LANDFARM
SOUTH LANDFARM

January 2012 - April 2012

Hess Corporation – Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

June, 30, 2012

Prepared for:

Mr. Howard Goldman
Environmental Manager
Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095

Prepared by:

David J. Carlson, PG, LSRP
Senior Project Manager

EnviroTrac

TABLE OF CONTENTS

EnviroTrac

FIGURES

TABLES

NORTH LANDFARM

SOUTH LANDFARM

NO. 1 LANDFARM

APPENDICES

1.0 INTRODUCTION

EnviroTrac Ltd. (EnviroTrac) has been retained by Hess Corporation (Hess) to provide environmental consulting services with regard to subsurface conditions at the Hess Corporation – Port Reading Refining Facility (HC-PR) located at 750 Cliff Road in Port Reading, Middlesex County, New Jersey (the subject site). The location of the subject site is shown on **Figure 1**.

This report presents activities occurring during the First and Second Quarters of 2012 regarding the HC-PR's No. 1 Landfarm and the inactive North and South Landfarms. The locations of the landfarms are shown on **Figure 2**.

2.0 NORTH LANDFARM

2.1 Historical Information

The United States Environmental Protection Agency (US EPA) issued a Hazardous and Solid Waste Amendments (HSWA) Permit (No. NJD045445483) for the Port Reading facility effective May 1, 1988. The HSWA Permit requires the nature, extent, and rate of migration of hazardous waste or hazardous constituents in soils, ground water and sediment at any solid waste management unit (SWMU) to be determined. In June 1988, HC-PR submitted a Closure and Post Closure Plan for the North Landfarm to the New Jersey Department of Environmental Protection (NJDEP). US EPA Region II requested in a July 1, 1995 letter that HC-PR submit an updated summary of all investigations and remediation activities conducted at the site.

On November 14, 1995 HC-PR was informed in an NJ DEP correspondence that the Bureau of Federal Case Management (BFCM) would assume oversight of the North and South Landfarms in addition to other applicable areas of concern. The NJ DEP correspondence presented specific comments pertaining to each of the above-mentioned facilities. This report is addressed to the NJDEP in accordance to that request.

The North Landfarm was formerly used to treat two listed hazardous waste streams, API Separator Sludge (K051) and Leaded Tank Bottoms (K052). Presented below is a discussion of the specific organic and inorganic chemicals that constitute these waste materials. The total volume of waste applied to the North Landfarm from 1978 until October 24, 1985 [the final date of application of Resource Conservation Recovery Act (RCRA) hazardous waste] is estimated at 21 tons. The quantity of hazardous waste applied to the Landfarm during this period is estimated at 15 tons. Non-hazardous biomass was applied to the Landfarm until about 1988.

2.2 Background and General Description

The North Landfarm is located in the central portion of the refining facility property. It is bounded on the west and south by the retention dike of Tank 7945 and on the east and north by a dike system built to retain run-off from the Landfarm. As such, all four sides of the North Landfarm are diked. The dimensions of the North Landfarm are approximately 200-feet (ft) long by 75-ft wide. The surface area of the North Landfarm is approximately one-third of an acre. The North Landfarm was constructed in 1974 and was formed by constructing an above-grade earthen dike adjoining the existing dike around Tank 7945. The Landfarm is underlain by dredged fill and native marsh soils containing silt and clay.

The North Landfarm operated from 1975 to October 24, 1985, receiving Interim Status in 1980. As part of the RCRA Part B permitting process and the Discharge to Ground Water permitting process under the NJPDES for the refining facility, HC-PR elected to close the North Landfarm.

2.3 Site Specific Geology and Hydrogeology

The North Landfarm is underlain by approximately eight feet of dredge fill that consists of reddish-brown sands with clay and silt. Underlying this fill layer is an organic rich clayey silt unit that changes to an organic rich fibrous material (peat) zone with silty clay at approximately 10 ft below ground surface (bgs).

The general flow of ground water beneath the North Landfarm is to the north-northeast. This gradient is likely affected by buried former channels of Smith Creek. These are located south and east of the Landfarm. The waters from the upper unconfined aquifer merge with North Drainage Ditch. The North Drainage Ditch trends northwest-southeast which connects to the Arthur Kill 2,100 feet southeast of the Landfarm.

The normal daily tide elevations in the Arthur Kill range from a low tide of about -2.3 ft below the National Geodetic Vertical Datum (NGVD) of 1929 to a high tide of +4.3 ft above NGVD. At typical high tide the ditch fills with water up past the North Landfarm, and at low tide the ditch is dry. There is no significant westward flow of water at high tide and no significant outward flow of water at low tide.

The North Landfarm is surrounded by dike containment walls, which prevent Landfarm surface water escape. The Landfarm has a ground water monitoring well network, to allow the detection of potential releases of constituents from the Landfarm. The wells are monitored and sampled on a quarterly basis in accordance to permit as presented below. Well construction details for monitoring wells installed in the North Landfarm are presented in **Table 1**. Well logs have previously been submitted to the Department.

2.4 Flood Plain Elevation

The 100-year flood level at the HC-PR facility is 10-ft above the NGVD. The North Landfarm surface elevation ranges from 10.5- to 12.5-feet above the NGVD. The dike of Tank 7945 is 18-feet above the NGVD.

2.5 Hydraulic Monitoring Results

Fluid levels in wells LN-1 through LN-7, LPG-2, and PER-4, were measured on January 18, 2012 and fluid levels in wells LN-1 through LN-7 were measured on April 24, 2012 using a sonic interface probe. Liquid-phase hydrocarbons (LPH) were not detected in any of the wells during these monitoring events. On January 18, 2012 the water table was measured to be between 3.17 (LPG-2) and 8.93- (LN-7) feet (ft) below the top of the well casing, and the calculated water table elevation varied between 5.99- (PER-4) and 7.66- (LN-1) feet relative to a designated benchmark. On April 24, 2012 the water table was measured to be between 4.87- (LN-1) and 9.22- (LN-7) ft below the top of the well casing, and the calculated water table elevation varied between 5.52- (LN-4) and 7.32- (LN-1) ft relative to a designated benchmark. Summarized ground water elevation contour data and water level data from the January 18, 2012 and April 24, 2012 monitoring events is presented in **Tables 2 and 3**, respectively.

The ground water elevations, from the January 18, 2012 and April 24, 2012 sampling events, were plotted on the site plan and points of equal elevation were contoured to construct the Ground Water Monitoring Maps included as **Figures 3 and 4**, respectively. The ground water maps indicate that overall ground water flow is to the northeast, which is consistent with past monitoring events.

2.6 Ground Water Monitoring

In accordance with N.J.A.C. 7: 26E-3.13(c) 7, ground water field parameters including temperature, conductivity, dissolved oxygen, and pH were meas ured in all the wells sampled on January 18, 2012 and April 24, 2012. The measurements were collected using a Horiba water quality meter (external). The results of the field measur ements collected during the January 18, 2012 and April 24, 2012 sampling events are presented in **Tables 2 and 3**, respectively.

2.7 Ground Water Sampling

Ground water sampling was conducted in accordance with the NJDEP *Field Sampling Procedures Manual* and the *Technical Requirements for Site Remediation*. Prior to sample collection, a minimum of three well volumes of ground water was purged from each well in order to introduce fresh ground water into the wells. Ground wate r purging was conducted at each well utilizing a bladder pump with clean dedicated tubing. Follo wing well water purging, ground water samples were collected directly from a disposable Te flon® bailer and then placed into laboratory-cleaned containers. Ground water samples were appropria tely labeled, logged, and placed into a cooler with ice to be maintained at four degrees Celsius prior to submittal to the laboratory. Between purging and sampling each monitoring well, sampling equipment was thoroughly decontaminated to prevent cross contamination. Furthermore, trip blanks and field blanks were collected and submitted for analysis to evaluate the potential for cross contamination.

Ground water samples were collected from monitoring wells LN-1 through LN-7 on January 18, 2012 and April 24, 2012. Accutest Laboratories (Accu test) of Dayton, New Jersey (NJ laboratory certification #12129) provided the analytical services.

2.8 Ground Water Analytical Results – January 18, 2012

The quarterly ground water monitoring data for the indicator parameters identified in HC-PR's NJDEP Discharge to Groundwater (DGW) permit are presented in **Tables 4 - 6**. Ground water samples LN-1 through LN-7 were analyzed for volatile organic compounds (VOC), metals, and general chemistry parameters. A summary of the analytical results is presented herein.

Volatile Organic Compounds

No targeted VOC concentrations were detected in wells LN-1 through LN-7 above the NJDEP Ground Water Quality Standards (GWQS) during the January 18, 2012 sampling event (**Table 4**).

Metals

Ground water samples were analyzed for several metals during the January 18, 2012 sampling event (**Table 5**). The results indicate that arseni c, iron, lead, manganese, and sodium were detected at concentrations above the NJDEP GWQS in wells LN-1 through LN-7.

Total Metals

A summary of the results of the total metals concentrations detected during the January 18, 2012 sampling event is provided herein.

Arsenic: Arsenic was detected above the NJDEP GW QS of 3 ug/L in wells LN-3 (48.5 ug/L), LN-4 (10.0 ug/L), LN-5 (6.6 ug/L), LN-6 (25.2 ug/L), and LN-7 (5.0 ug/L).

Iron: Iron was detected above the NJDEP GWQS of 300 ug/L in each of the wells sampled.

Lead: Lead was detected above the NJDEP GWQS of 5 ug/L in well LN-5 (23.2 ug/L)

Manganese: Manganese was detected above the NJDEP GWQS of 50 ug/L in each of the wells sampled.

Sodium: Sodium was detected above the NJDEP GWQS of 50,000 ug/L in wells LN-1 (272,000 ug/L), LN-2 (81,600 ug/L), LN-3 (149,000 ug/L), LN-4 (107,000 ug/L), LN-6 (71,500 ug/L), and LN-7 (205,000 ug/L).

General Chemistry

Ground water samples were analyzed for various general chemistry parameters during the January 18, 2012 sampling event. It should be noted t hat only general chemistry parameters detected above their respective NJDEP GWQS are discussed in the section below. A summary of the analytical results are presented in **Table 6**.

Total Organic Carbon

Ground water samples have been analyzed for TOC as a measure of the overall organic contamination attributable to the North Landfarm. Analytical results presented in **Table 6** indicate that the sample from well LN-3 exhibited the greatest TOC at concent ration at 13.2 milligrams per liter (mg/L). TOC concentrations detected in the remaining samples LN-1, LN-2, and LN-4 through LN-7 ranged from 1.6 mg/L to 10.4 mg/L.

Total Dissolved Solids

Total dissolved solids (TDS) were detected above the NJDEP GWQS of 500 mg/L in samples LN-1 (998 mg/L), LN-3 (557 mg/L), and LN-7 (702 mg/L). Concentrations of TDS remained below the NJDEP GWQS in samples LN-2, LN-4, LN-5, and LN-6.

Nitrogen, Ammonia

Nitrogen, Ammonia was detected above the interim specif ic standard of 3.0 mg/L in sample LN-1 (3.5 mg/L). Concentrations of Nitrogen, Ammonia remai ned at or below the interim specific standard in samples LN-2, LN-3, LN-4, LN-5, LN-6 and LN-7.

Chloride

- Chloride was detected above the NJDEP GWQS of 250 mg/L in sample LN-1 (364 mg/L),. Concentrations of Chloride remained below the NJDEP GWQS in samples LN-2, LN-3, LN-4, LN-5, LN-6, and LN-7.

pH

All North Landfarm samples were inside of the NJDEP GWQS range of 6.5 and 8.5.

2.9 Ground Water Analytical Results – April 24, 2012

During the April 24, 2012 sampling event, ground water samples LN-1 through LN-7 were analyzed for volatile organic compounds (VOC), metals, and general chemistry parameters. Complete analytical results are presented in **Tables 4 – 6** and are summarized herein.

Volatile Organic Compounds

No targeted VOC concentrations were detected in wells LN-1 through LN-7 above the NJDEP Ground Water Quality Standards (GWQS) during the April 24, 2012 sampling event (**Table 4**).

Metals

Ground water samples were analyzed for several metals during the April 24, 2012 sampling event (**Table 5**). The results indicate that iron was detected at concentrations above the NJDEP GWQS in wells LN-1 through LN-7. The results indicate that manganese was detected at concentrations above the NJDEP GWQS in wells LN-1 through LN-4, and LN-6 and LN-7. The results indicate that arsenic was detected at concentrations above the NJDEP GWQS in wells LN-2 through LN-4, and LN-6 through LN-7. . The results indicate that sodium was detected at concentrations above the NJDEP GWQS in wells LN-1 through LN-4 and LN-6.

Total Metals (Chromium and Total Lead)
A summary of the results of the total metals concentrations detected during the April 24, 2012 sampling event is provided herein (**Table 5**).

Arsenic: Arsenic was detected above the NJDEP GWQS of 3 ug/L in wells LN-2 (10.5 ug/L), LN-3 (11.7 ug/L), LN-4 (10.9 ug/L), LN-6 (12.9 ug/L), and LN-7 (8.1 ug/L).

Iron: Iron was detected above the NJDEP GWQS of 300 ug/L in each of the wells sampled.

Manganese: Manganese was detected above the NJDEP GWQS of 50 ug/L in wells LN-1 (1,520 ug/L), LN-2 (409 ug/L), LN-3 (1,390 ug/L), LN-4 (532 ug/L), LN-6 (545 ug/L), and LN-7 (1,170 ug/L).

Sodium: Sodium was detected above the NJDEP GWQS of 50,000 ug/L in wells LN-1 (271,000 ug/L), LN-2 (64,200 ug/L), LN-3 (714,000 ug/L), LN-4 (94,700 ug/L), and LN-6 (85,800 ug/L).

General Chemistry

Ground water samples were analyzed for various general chemistry parameters during the April 24, 2012 sampling event. It should be noted that only general chemistry parameters detected above their respective NJDEP GWQS are discussed in the section below. A summary of the analytical results are presented in **Table 6**.

Total Organic Carbon

Ground water samples have been analyzed for TOC as a measure of the overall organic contamination attributable to the North Landfarm. Analytical results presented in **Table 6** indicate that the sample from well LN-1 exhibited the greatest TOC at concentration at 8.1 milligrams per liter (mg/L). TOC concentrations detected in samples LN-2 through LN-7 ranged from 1.0 mg/L to 7.9 mg/L.

Total Dissolved Solids

Total dissolved solids (TDS) were detected above the NJDEP GWQS of 500 mg/L in samples LN-1 (998 mg/L), LN-3 (3,450 mg/L), and LN-7 (577 mg/L). Concentrations of TDS remained below the NJDEP GWQS in sample LN-2, LN-4, LN-5, and LN-6.

Nitrogen, Ammonia

Nitrogen, Ammonia was detected above the interim specif ic standard of 3.0 mg/L in sample LN-1 (4.8 mg/L). Concentrations of Nitrogen, Ammonia remai ned at or below the interim specific standard in samples LN-2 through LN-7.

Chloride

Chloride was detected above the NJDEP GWQS of 250 mg/L in samples LN-1 (380 mg/L) and LN-3 (1,720 mg/L). Concentrations of Chloride remained at or below the NJDEP GWQS in samples LN-2, LN-4, and LN-5 through LN-7.

pH

The pH values were detected below the NJDEP GWQS range of 6.5 in samples LN-5 (6.19) and LN-7 (5.68). All remaining North Landfarm samples were inside of the NJDEP GWQS range of 6.5 and 8.5.

2.10 Conclusions

Ground water concentrations for the both the January and April 2012 events were consistent with previous quarterly sampling events. Variations in concentrations of me tals and general chemistry parameters were within historical observed ranges. Chromium levels continue to remain within the relevant regulatory standards.

There was a new pattern that developed that will be watched in future sampling events. Prior to April 2012 none of the North Landfarm wells has exhibi ted a detectable concentration of selenium. Selenium was detected in wells LN-2, LN-3, and LN -6 during April 2012. All of these wells are hydraulically downgrade to the north of the landfarm. None of the concentrations exceeded the NJDEP GWQS. Future sampling events will continue to monitor groundwater conditions to assess whether these are temporary conditions.

The electronic data packages for the samples collected in January and April 2012 are presented in **Appendix A.**

3.0 SOUTH LANDFARM

3.1 Historical Information

The South Landfarm was constructed in 1975 above a former surface impoundment that received oily wastewaters. The South Landfarm wa s utilized for the treatment of oily soils and oily sludges from the onsite API Separator, corrugated plate separator, recoverable (slop) oil tank bottoms, and petroleum product storage tank bottoms. This unit was part of the waste management system for the refinery tank farm operation. The South Landfarm was operated during the refinery standby period from 1975 until 1984. In 1980, the South Landfarm received RCRA “Interim Status ” for operation as RCRA land treatment units.

When the refinery reactivation construction began in 1983, new projections of land treatment area requirements were made based on the projected oily sludge generation rate once the refinery came on-line. Based on these projections, additional land treatment area requirements were anticipated. During this time, HC-PR decided that the South Landfarm should be closed as the area could not be used for expanding the onsite Landfarm system. This decis ion was also based on the RCRA land treatment

regulations of 40 CFR 264.271(c)(2), which specify that there be a minimum of three feet of soil between the bottom of the treatment zone and the top of the seasonal high ground water table. The RCRA ground water monitoring data collected in the South Landfarm area indicated that the ground water table might be too high to meet this requirement. In May 1984, HC-PR requested permission through the NJDEP to close the South Landfarm.

On November 14, 1995 HC-PR was informed in an NJDEP correspondence that the BFCM would assume oversight of the North and South Landfarms in addition to other applicable areas of concern. The NJDEP correspondence presented specific comments pertaining to each of the above-mentioned facilities. This report is addressed to the NJDEP in accordance to that request.

The South Landfarm was formerly used to treat two listed hazardous waste streams, API Separator Sludge (K051) and Leaded Tank Bottoms (K052). Presented below is a discussion of the specific organic and inorganic chemicals that may have been contained in those waste streams.

3.2 Site Specific Geology and Hydrogeology

A silty clay marsh layer underlies the South Landfarm at a depth of about 10 to 20 ft bgs. This marsh layer provides an effective aquitard (confining barrier) between the upper unconfined water table directly beneath the Landfarm, and the deeper confined water table underlying the marsh layer. Ground water elevation measurements made in the RCRA monitoring wells do not indicate a consistent ground water flow direction within the landfarm. Consideration of water table elevations from monitoring wells outside the landfarm illustrates the flow direction in the area is generally towards the south to southwest.

Ground water contouring of water level data from the LS-1R, LS-2 through LS-4 monitoring wells indicates that LS-1R is an upgradient well. Hydrogeologic data also indicates that LS-3 is screened in poorly consolidated silty clay, which differs from the other wells that have screened intervals that include sand units that may represent sands deposited in former channels of the Smith Creek. The water level response to precipitation in LS-3 is not the same as in the other wells. Well LS-3 is close to the Landfarm and, historically, was thought to be the center-most downgradient well. Monitoring well LS-3 typically shows lower contaminant concentrations than LS-4. The clay stratum, which LS-3 is screened across, is one of the likely reasons for differing groundwater elevation and the lower observed concentrations in this well. Well construction details for monitoring wells installed in the South Landfarm are presented in **Table 8**.

3.3 Hydraulic Monitoring Results

Fluid levels in wells LS-1R, LS-2 through LS-4, PL-1, PL-3R, PL-6R, PL-9R, and TM-6, were measured on January 19, 2012 and LS-1R, LS-2 through LS-4 were measured on April 25, 2012 using a sonic interface probe. LPH was not detected in any wells during the January 19, 2012 and April 25, 2012 sampling events. On January 19, 2012 the water table was measured to be between 1.12 ft (LS-3) and 5.95 ft (TM-6) below the top of the well casing, and the calculated water table elevation varied between 8.21 ft (PL-1) and 12.32 ft (LS-1R) relative to a designated benchmark. On April 25, 2012 the water table was measured to be between 0.55 (LS-3) and 3.10 (LS-1R) ft below the top of the well casing, and the calculated water table elevation varied between 9.40 (LS-4) and 11.39 (LS-1R) ft relative to a designated benchmark. Summarized ground water elevation contour data and water level data from the January 19, 2012 and April 25, 2012 monitoring events is presented in **Tables 9 and 10**, respectively.

The ground water elevations, from the January 19, 2012 and April 25, 2012 sampling events, were plotted on the site plan and points of equal elevation were contoured to construct the Ground Water Monitoring Maps included as **Figures 5 and 6**, respectively. The ground water maps indicate that ground water flow is to the south, which is consistent with past monitoring events.

3.4 Ground Water Monitoring

In accordance with N.J.A.C. 7: 26E-3.13(c)7, ground water field par ameters including temperature, conductivity, dissolved oxygen and pH were measured in all the wells sampled on January 19, 2012 and April 25, 2012. The measurements were collected using a Horiba water quality meter (external). The results of the field measurements collected during the referenced sampling events are presented in **Tables 9 and 10**.

3.5 Ground Water Sampling

Ground water sampling was conducted in accordance with the NJDEP *Field Sampling Procedures Manual* and the *Technical Requirements for Site Remediation*. Prior to sample collection, a minimum of three well volumes of ground water was purged from each well in order to introduce fresh ground water into the wells. Ground wate r purging was conducted at each well utilizing a bladder pump with clean dedicated tubing. Follo wing well water purging, ground water samples were collected directly from a disposable Te flon ® bailer and then placed into laboratory-cleaned containers. Ground water samples were appropria tely labeled, logged, and placed into a cooler with ice to be maintained at four degrees Celsius prior to submittal to the laboratory. Between purging and sampling each monitoring well, sampling equipment was thoroughly decontaminated to prevent cross contamination. Furthermore, trip blanks and field blanks were collected and submitted for analysis to evaluate the potential for cross contamination.

Ground water samples were collected from monitoring wells LS-1R and LS-2 through LS-4 on January 19, 2012 and April 25, 2012. The samples were submitted to Accutest for analysis.

3.6 Ground Water Analytical Results – January 19, 2012

HC-PR has collected samples from the four ground water monitoring wells (LS-1R, LS-2, LS-3 and LS-4) located adjacent to the South Landfarm on a quarterly basis since April 1985. Ground water samples LS-1R and LS-2 through LS-4 were anal yzed for VOCs, metals , and general chemistry parameters. A summary of the anal ytical results is presented herein. Analytical results from the referenced event are presented in **Tables 11 - 13**.

Volatile Organic Compounds

On January 19, 2012 Benzene was detected in sample LS-3 at concentrations above its respective NJDEP GWQS. TBA was detected in sample LS-3 (149 ug/L) above its respective NJDEP GWQS. Additional targeted VOCs were detected above the laboratory method detection limit in samples LS-1R through LS-4, but the concentrati ons were below the NJDEP GWQS. **Table 11** includes the ground water monitoring results for VOCs detected during the January 19, 2012 ground water sampling event. A summary of the benzene and T BA concentrations detected above the GWQS is presented below.

Benzene: Concentrations of benzene were detect ed in well LS-3 (102 ug/L), above the NJDEP GWQS of 1 ug/L. The benzene c oncentrations detected in LS-1R (ND), LS-2 (0.49 ug/L), and LS-4 (0.59J) did not exceed the NJDEP GWQS during this sampling event.

TBA: TBA was detected in well LS-3 (149 ug/ L), above the NJDEP GWQS of 100 ug/L. The TBA concentrations detected in LS-1R (ND), LS-2 (ND), and LS-4 (44.2 ug/L) did not exceed the NJDEP GWQS during this sampling event.

Metals

Ground water samples were analyzed for metals during the January 19, 2012 sampling event (**Table 12**). The results indicate that arsenic, iron, lead, manganese, and sodium were detected at concentrations above the NJDEP GWQS in wells LS-1R through LS-4.

Total Metals

A summary of the results of the total metals concentrations detected during the January 19, 2012 sampling event is provided herein.

Arsenic: Arsenic was detected above the NJDEP GWQS of 3 ug/L in wells LS-1R through LS-4.

Iron: Iron was detected above the NJDEP GWQS of 300 ug/L in wells LS-1R through LS-4.

Lead: Lead was detected above the NJDEP GWQS of 5 ug/L in well LS-3 (7.0 ug/L).

Manganese: Manganese was detected above the NJDEP GWQS of 50 ug/L in wells LS-1R through LS-4.

Sodium: Sodium was detected above the NJDEP GWQS of 50,000 ug/L in wells LS-1R through LS-4.

General Chemistry

Ground water samples were analyzed for various general chemistry parameters during the January 19, 2012 sampling event. It should be noted that only general chemistry parameters detected above their respective NJDEP GWQS are discussed in the section below. A summary of the analytical results are presented in **Table 13**.

Total Organic Carbon

TOC concentrations are of interest as an indicator of the overall contribution of organic compounds by the South Landfarm to downgradient ground water. Analytical results from the January 19, 2012 sampling event (**Table 13**) indicated that TOC concentrations ranged from 13.6 mg/L in LS-1R to 56.0 mg/L in LS-2.

Total Dissolved Solids

TDS concentrations were detected above the NJDEP GWQS of 500 mg/L in samples LS-1R through LS-4. Concentrations of TDS ranged from 592 mg/L in well LS-1R to 4,000 mg/L in well LS-2.

Nitrogen, Ammonia

Ammonia was detected above the interim specific standard of 3.0 mg/L in samples LS-2 through LS-4 at concentrations of 5.9 mg/L, 3.4 mg/L, and 62.0 mg/L, respectively. Concentrations of ammonia remained below the GWQS in sample LS-1R.

Chloride

Chloride was detected above the NJDEP GWQS of 250 mg/L in samples LS-2 through LS-4 at concentrations of 2,780 mg/L, 383 mg/L and 1,890 mg/L, respectively. Concentrations of chloride remained below the GWQS in sample LS-1R.

3.7 Ground Water Analytical Results – April 25, 2012

During the April 25, 2012 sampling event, ground water samples LS-1R through LS-4 were analyzed for VOCs, metals and general chemistry par ameters. Analytical results from the referenced event are presented in **Tables 11 - 13** and a summary of the results is presented herein.

Volatile Organic Compounds

Benzene was detected in samples LS-2 (1.0 ug/L) , LS-3 (23.3 ug/L) and LS-4 (1.20 ug/L) at concentrations above its respective NJDEP GWQS. TBA was detected in sample LS-4 (129 ug/L) above its respective NJDEP GWQS. Additional ta rgeted VOCs were detected above the laboratory method detection limit in samples LS-1R, LS-2, LS -3, and LS-4, but the concentrations were below the NJDEP GWQS. **Table 11** includes the ground water monitoring results for VOCs detected during the April 25, 2012 ground water sampling event. A summary of the benzene and TBA concentrations detected above the GWQS is presented below.

Benzene: Concentrations of benzene were detected in wells LS-2, LS-3, and LS-4 at 1.0 ug/L, 23.3 ug/L, 1.20 ug/L, respectively , which are above the NJDEP GWQS of 1 ug/L. The benzene concentration detected in LS-1R (ND) did not exceed the NJDEP GWQS during this sampling event.

TBA: TBA was detected in well LS-4 at 129 ug/ L, which is above the NJDEP GWQS of 100 ug/L. The TBA concentrations detected in LS-1R (ND), LS-2 (92.9 ug/L), and LS-3 (71.9 ug/L) did not exceed the NJDEP GWQS during this sampling event.

Metals

Ground water samples were analyzed for metals during the April 25, 2012 sampling event (**Table 12**). The results indicate that arsenic, iron, manganese, and sodium were detected at concentrations above the NJDEP GWQS in wells LS-1R through LS-4.

Total Metals

A summary of the results of the total metals concentrations detected during the April 25, 2012 sampling event is provided herein.

Arsenic: Arsenic was detected above the NJDEP GW QS of 3 ug/L in wells LS-1R through LS-4.

Iron: Iron was detected above the NJDEP GWQS of 300 ug/L in wells LS-1R through LS-4.

Manganese: Manganese was detected above the NJDEP GWQS of 50 ug/L in wells LS-1R through LS-4.

Sodium: Sodium was detected above the NJDEP GWQS of 50,000 ug/L in wells LS-1R through LS-4.

General Chemistry

Ground water samples were analyzed for various general chemistry parameters during the April 25, 2012 sampling event.

Total Organic Carbon

TOC concentrations are of interest as an indicator of the overall contribution of organic compounds by the South Landfarm to downgradient ground water. Analytical results from the April 25, 2012 sampling event (**Table 13**) indicated that TOC concentrations ranged from 11.9 mg/L in LS-3 to 55.9 mg/L in LS-4.

Total Dissolved Solids

TDS concentrations were detected above the NJDEP GWQS of 500 mg/L in samples LS-2 through LS-4 at concentrations of 3,000mg/L, 671 mg/L, and 3,580 mg/L respectively. Concentrations of ammonia remained below the GWQS in sample LS-1R.

Nitrogen, Ammonia

Ammonia was detected above the interim specific standard of 3.0 mg/L in samples LS-2 and LS-4 at concentrations of 4.0 mg/L, and 57.4 mg/L, respectively. Concentrations of ammonia remained below the GWQS in sample LS-1R and LS-3.

Chloride

Chloride was detected above the NJDEP GWQS of 250 mg/L in samples LS-2 and LS-4 at concentrations of 1,440 mg/L and 2,040 mg/L, respectively. Concentrations of chloride remained below the GWQS in sample LS-1R and LS-3.

3.8 Conclusions

Ground water analytical results from January 19, 2012 were consistent with historical results. VOCs were within regulatory requirements, with the exception of benzene in well LS-3 and TBA in well LS-3. Ground water analytical results from April 25, 2012 indicated VOCs within regulatory requirements, with the exception of benzene in wells LS-2, LS-3 and LS-4and TBA in wells LS-4 and LS-3.

Analytical results indicate several metals including, arsenic, iron, manganese and sodium, were detected at concentrations above the NJDEP GWQS in the South Landfarm wells during both January and April.

In both sampling events TDS were detected above the NJDEP GWQS within LS-1R through LS-4. Chloride concentrations were detected above the NJDEP GWQS in wells LS-2 through LS-4. Nitrogen, ammonia was detected above the NJDEP GWQS in wells LS-2 through LS-4 during the January and April 2012 events.

Overall, the analytical results are consistent with those detected during the previous sampling event with a few exceptions. During the October 2011 event barium had been detected in LS-1R for the first time (tabulated record since 2005). Barium was not detected in January or April 2012.

Chromium was detected for the first time in 3 years in LS-2 and LS-4 in both January and April 2012. Concentrations were less than GWQS.

During the October event TBA was not detected in LS-4 for the first time since April 2007 and iron in LS-3 was lower than any event recorded since 2005. TBA was detected at concentrations in line with historical results in January and April 2012.

Future sampling events will continue to monitor groundwater conditions to assess whether these are temporary conditions.

The electronic data packages for the samples collected in January and April 2012 are presented in **Appendix A**.

4.0 No. 1 LANDFARM

4.1 Historical Information

The No. 1 Landfarm began operations in December 1985 under a revised Part A Interim Status Permit granted by the NJDEP on April 26, 1984 and an Interim NJPDES Discharge to Ground Water Permit No. NJ 0028878 issued in April 1985 for operation of the North Landfarm and No. 1 Landfarm Systems. The No. 1 Landfarm is state-of-the-art in design with an impermeable compacted clay liner. Above the clay liner is a leachate collection system, which collects water that that has percolated through the treatment zone of the Landfarm, located immediately above the leachate collection system. As such, it is designed not to allow any leachate (soil-pore water) discharges into the ground water. The No. 1 Landfarm run-off fluids are contained within the dike walls, deflected to sump by clay liner and collection system, and pumped to the Advanced Waste Water Treatment System (AWWTS) via a dedicated line.

The Landfarm was permitted to treat four RCRA hazardous waste streams – API Separator Sludge (K-051), heat exchanger bundle cleaning sludge (K-050), leaded tank bottoms (K-052) and TEL tank bottoms (P-110).

4.2 Site Specific Geology and Hydrogeology

The No. 1 Landfarm area was built to present grade with dredged sediments from the Arthur Kill, as indicated in the May 10, 1984 RCRA Part B Permit Application. The boring logs for the No. 1 Landfarm monitoring wells support this information and indicate that the area was once a saline marsh.

The upper horizon can be described from the shallow monitoring well logs of the No. 1 Landfarm. These wells are screened in an unconfined aquifer. The well logs show the formation to vary from fine to medium sand to coarse gravel. The bottom elevation of the adjacent North Drainage Ditch is lower than that of the ground water table measured at the No. 1 Landfarm monitoring wells. Therefore, ground water in this area intersects the North Drainage Ditch. Well construction details for monitoring wells installed in the No. 1 Landfarm area are presented in **Table 14**.

Ground Water Monitoring System

The NJDEP approved ground water monitoring network consists of five monitoring wells (L1-1 through L1-4, and BG-2) screened in the shallow water table. The major topographical features in the immediate area are two drainage ditches near the No. 1 Landfarm. The main drainage ditch is adjacent to the north end of the Landfarm and runs east to west. This ditch is a municipal stormwater drainage channel. A smaller ditch that runs north to south drains into the larger municipal stormwater ditch west of the No. 1 Landfarm.

The monitoring wells were installed in locations based on the valid assumption that the large east-west ditch would be the dominant unconfined ground water sink. The three downgradient monitoring wells, L1-4, L1-3, and L1-2 are positioned between the Landfarm and the east-west ditch, which leads to the Arthur Kill. The two upgradient monitoring wells, L1-1 and BG-2, are located south of the Landfarm opposite the east-west ditch north of the Landfarm.

Ground Water Flow Direction

In the area around the No. 1 Landfarm, the geological formation grain size shift has an impact on the shape of the ground water contour map. The gravel observed around monitoring well L1-2 is likely infill within the bed of a buried tributary to the Smith Creek that ran north-south prior to construction of the refinery facility.

Since there is less head loss when water flows through gravel, a V-shaped contour of lower ground water level extends southward from the large east-west running ditch in about the same area as the smaller north-south running ditch. This deflection in the unconfined ground water levels is similar to an embayment of the ocean into a stream mouth (i.e. confluence of unconfined ground water in the gravels underlying the tributary ditch and the surface water in the stormwater ditch).

Ground Water Velocity

A pumping test was conducted on well L1-2 on April 3, 1987. The results from this pumping test were provided in the CMP. Based on this data, it has been estimated that the velocity of the ground water in the No. 1 Landfarm area to be approximately five ft per day (ft/day). This velocity is consistent with typical gravelly sand horizons under the relatively steep hydraulic gradient observed in this area.

4.3 Hydraulic Monitoring Results

Fluid levels in ten (10) wells, L1-1 through L1-4, BG-2, SP-1 through SP-3, TF-1, and TF-3, were measured on January 19, 2012 and fluid levels in five (5) wells, L1-1 through L1-4 and BG-2 were measured on April 24, 2012 using a sonic interface probe. LPH was detected in well TF-2 in January. On January 19, 2012 the water table was measured to be between 1.97 (TF-3) and 8.41 (L1-4) ft below the top of the well casing, and the calculated water table elevation varied between 4.51 (L1-3) and 8.76 (TF-3) ft relative to a designated benchmark. On April 24, 2012 the water table was measured to be between 4.21 (BG-2) and 8.20 (L1-4 and SP-2) ft below the top of the well casing, and the calculated water table elevation varied between 4.58 (L1-2) and 6.92 (BG-2) ft relative to a designated benchmark. Summarized ground water elevation contour data and water level data from the January 19, 2012 and April 24, 2012 monitoring events is presented in **Tables 15 and 16**, respectively.

The ground water elevations, from the January 19, 2012 and April 24, 2012 sampling events, were plotted on the site plan and points of equal elevation were contoured to construct the Ground Water Monitoring Maps included as **Figures 7 and 8**, respectively. The ground water maps indicate that ground water flow is to the northeast for the two sampling events. During both events the 'V' pattern attributed to an historic stream channel (see Groundwater Flow Direction above) was observed.

4.4 Ground Water Monitoring

In accordance with N.J.A.C. 7: 26E-3.13(c)7, ground water field parameters including temperature, conductivity, dissolved oxygen and pH were measured in all the wells sampled on January 19, 2012 and April 24, 2012. The measurements were collected using a Horiba water quality meter (external). The results of the field measurements collected during the referenced sampling events are presented in **Tables 15 and 16**, respectively.

4.5 Ground Water Sampling

Ground water sampling was conducted in accordance with the NJDEP *Field Sampling Procedures Manual* and the *Technical Requirements for Site Remediation*. Prior to sample collection, a

minimum of three well volumes of ground water was purged from each well in order to introduce fresh ground water into the wells. Ground wate r purging was conducted at each well utilizing a bladder pump with clean dedicated tubing. Follo wing well water purging, ground water samples were collected directly from a disposable Te flon ® bailer and then placed into laboratory-cleaned containers. Ground water samples were appropria tely labeled, logged, and placed into a cooler with ice to be maintained at four degrees Celsius prior to submittal to the laboratory. Between purging and sampling each monitoring well, sampling equipment was thoroughly decontaminated to prevent cross contamination. Furthermore, trip blanks and field blanks were collected and submitted for analysis to evaluate the potential for cross contamination.

Ground water samples were collected from monitoring wells L1-1, L1-2, L1-3, L1-4, and BG-2 on January 19, 2012 and April 24, 2012. The samples were submitted to Accutest for analysis.

4.6 Ground Water Analytical Results – January 19, 2012

During the January 19, 2012 sampling event, ground water samples L1-1 through L1-4 and BG-2 were analyzed for VOCs, base neutrals and metals. Analytical results from the referenced event are presented in **Tables 17 - 19**, and a summary of the results is presented herein.

Volatile Organic Compounds

No targeted VOC concentrations were detected above their respective NJDEP GWQS limits in any well during the January 19, 2012 sampling event (**Table 17**).

Total Metals

A summary of the results of the total metals concentrations detected during the January 19, 2012 sampling event is provided herein.

Arsenic: Arsenic was detected above the NJDEP GWQS of 3 ug/L in wells L1-2 (12.4 ug/L), L1-3 (63.3 ug/L), L1-4 (73.3 ug/L), and BG-2 (4.6 ug/L) (**Table 18**).

Lead: Lead was detected above the NJDEP GWQS of 5 ug/l in well L1-4 (19.2 ug/L)

Base Neutrals

During the January 19, 2012 sampling event, bis(2— thylhexyl)phthalate was detected above its respective NJDEP GWQS of 3 ug/L in wells L1-1 (4.8 ug/L), L1-3 (10.7 ug/L), and L1-4 (14.2 ug/L). No other targeted semi-volatile compounds we re detected above their respective GWQS (**Table 19**).

4.7 Ground Water Analytical Results – April 24, 2012

During the April 24, 2012 sampling event, ground water samples L1-1 through L1-4 and BG-2 were analyzed for VOCs, base neutrals and metals. Analytical results from the referenced event are presented in **Tables 17 - 19**, and a summary of the results is presented herein.

Note that two case of non-conformance to t he standard quarterly sampling regime occurred during April 2012. Upon notice from the laboratory Hess contacted the NJDEP to discuss the findings. Based on the discussion below re-sampling was not deemed necessary as the parameters have not been historic concerns and will be monitored in July 2012 during the next quarterly sampling event.

The phenol analysis by USEPA Method 420.4 of the sample from well L1-1 was not performed due to sampler error. The sample container for this specific analysis was not included in the sample cooler transferred to the laboratory. It shoul d be noted that phenol is a target compound of the semi-volatile USEPA Method 8270 analyses and was not detected at a laboratory reporting limit of 2.0 ug/l. In addition, cyanide analyses by USEPA Method 335.4 were not conducted on samples L1-1, L1-2, l1-3, L1-4, and BG-2. This oversight was due to laboratory error. The initial bottle order was made for Priority Pollutant plus 40 anal yses and the laboratory prepared and shipped the bottles to EnviroTrac. Field Technicians collected samples and filled the pre-labeled bottles, and forwarded the bottles to the laboratory. Upon receipt the laboratory notified EnviroTrac the volume of sample was insufficient to perform the cyanide analyses.

Phenol has never been detected in any in any No. 1 Landfarm well. Cyanide has never been detected in any No. 1 Landfarm well at a conc entration greater than the applicable groundwater standard. Both compounds will be analyzed during the July 2012 quarterly sampling and subsequent events.

Volatile Organic Compounds

Targeted VOCs not regularly observed in wells L1-1, L1-2, and L1-3 were detected above the laboratory method detection limit but below t he NJDEP GWQS. Wells L1-4 and BG-2 did not contain VOCs above the method detection limits (**Table 17**).

Total Metals

Arsenic was detected above the NJDEP GWQS of 3 ug/L within L1-2 (3.0 ug/L), L1-3 (27.0 ug/L), L1-4 (12.7 ug/L), and BG-2 (5.1 ug/L) (**Table 18**).

Base Neutrals

No targeted semi-volatile concentrations were det ected in any well above their respective GWQS during the April 24, 2012 sampling event (**Table 19**).

4.8 Leachate Monitoring

As an indicator of the very low potential for adv erse environmental impact relative to the No. 1 Landfarm analytical results are obtained from samp les of the leachate gener ated by the Landfarm. During the reporting period, samples were obt ained from the leachate generated by the No. 1 Landfarm on April 25, 2012.

4.9 Leachate Sampling – April 25, 2012

One sample, L1 Leachate, was collected on April 25, 2012 and submitted to Accutest for analysis. A summary of the analytical results is provided in **Table 20** and is summarized herein. The results of the leachate sampling indicate that no VOCs were detected above the applicable NJDEP GWQS. The results of the leachate sampling al so indicated that no base neutral concentrations were detected above their respective NJDEP GWQS. The metal concentrations of Arsenic and Nickel were detected above the NJDEP GWQS of 3 ug/L and 100 ug/L at 10.2 ug/L and 451 ug/L respectively.

4.10 Lysimeter Monitoring

Lysimetry is used as an indicator of the quality of the soil-pore fluids in the unsaturated zone under the Landfarm (or at background) and is used to help determine whether the regulated units have had a potential release of hazardous constituents into the subsurface soils or ground water.

4.11 Lysimeter Sampling – July 21, 2011

Two lysimeter samples, BG-LY1 and BG-LY2, we re collected on July 20, 2011 and submitted to Accutest for analysis. A summary of the analytical results is provided in **Table 21** and is outlined herein. The results of the lysimeter sampling indicated that no VOCs were detected above the applicable NJDEP GWQS. The base neutral concent ration of Bis(2-Ethylhexyl)phthalate was detected above NJDEP GWQS of 3 ug/L at 17.0 ug/L in sample BG-LY2. The metal concentrations of arsenic, chromium, lead, mercury, and nickel were detected above NJDEP GWQS in sample BG-LY-1. The detection limits for antimony, barium, beryllium, cadmium, selenium, and vanadium were greater than the GWQS in sample BG-LY1 . The metal concentrations of arsenic and lead were detected above NJDEP GWQS in samples BG-LY-2.

4.12 Soil Core Monitoring

Annual soil core sampling was completed on July 20, 2011. The results from this sampling event are reported in Table 22. The results of the soil core monitoring indicate that arsenic in sample ZO-1 was the only parameter detected above NJDEP Residential Direct Contact Soil Remediation Standards. No other VOCs, base neutral, or metal concentrations were detected above the NJDEP Residential Direct Contact Soil Remediation Standard during the July 2011 sampling event.

4.13 Conclusions

With the exception of arsenic in wells L1- 2, L1-3, L1-4 and background well BG-2 ground water concentrations of VOCs, base neutrals, and metals detected in the No. 1 Landfarm wells were within the relevant regulatory standards duri ng the January and April 2012 event. The arsenic concentrations are consistent with historic groundwater monitoring at the No 1 Landfarm.

Chlorobenzene was detected at a concentration in excess of the GWQS in L1-2 during the October 2011 sampling event. The concentrations had not been seen at that well since approximately 1999 and were suspected to be related to the extreme precipitation conditions of August and September 2011 and unrelated to the landfarm operations. The detected concentrations o0f Chlorobenzene declined in January 2012 and further declined in Ap ril 2012. This data appears to confirm the supposition the levels are not due to the landfarm.

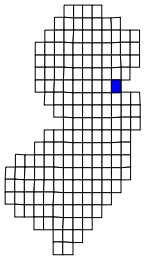
The results of the April 2012 leachate sampling i ndicate that no VOCs, base neutrals, or total metals were detected above the GWQS, with the exception of nickel and arsenic. This is consistent with previous leachate sampling ev ents. The observed elev ated concentrations of various metals were not consistent with earlier samples. The elevated metals results were not reflected in groundwater samples.

The concentrations of all groundwater indicator par ameters specified by Table 2 of the Special Conditions to the IWMF Operating Permit remain below trigger values that would require additional data analyses. Continued quarterly monitoring w ill be conducted as per the landfarm operating permit. The next monitoring event will be July 2012. The resultant data will be used to assess whether these reported results are anomalous or indicate a trend.

The electronic data packages for the samples collected in January and April 2012 are presented in **Appendix A.**

5.0 SUMMARY AND IMPLEMENTATION SCHEDULE

HC-PR will continue to submit semi-annual Ground Water Monitoring reports that present and discuss the current sampling activities. The Landfarms will continue to be sampled on a quarterly basis. The next sampling event will be conducted in July 2012.



QUADRANGLE LOCATION:
ARTHUR KILL, NEW JERSEY

SOURCE:
USGS 7.5 MINUTE SERIES

N
W E
S

2000 0 2000 4000 Feet

FIGURE #	SITE LOCATION MAP	DRAWN BY: B.J.S.	EnviroTrac
1	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY	DATE: 4/22/08	400 E Corporate Court South Plainfield, NJ 07080 PHONE: (908) 757-1900 FAX: 757-0017

CONRAIL (PORT READING BRANCH)

AOC No.17
PORT READING COAL DOCK AREA

COLONIAL PIPELINE

AOC 14a
TM MONITORING WELLS

AOC No. 1
NORTH LANDFARM AREA

AOC No. 4
DREDGE SPOILS AREA

AOC No. 3
NO. 1 LANDFARM

AOC 15a
RAILCAR LOADING AREA

AOC No. 15a
FORMER UST AREA (UST 0010, UST 0011)

AOC No. 2
SOUTH LANDFARM AREA

AOC No. 11
FORMER UST ADMINISTRATION BUILDING AREA

AOC No. 9
ALKYLATION UNIT SEWER LINE LEAK AREA

AOC 14b
TM MONITORING WELLS

AOC No. 6
WASTE OIL UST AREA

AOC 15c
FORMER UST AREA (UST 0004)

AOC 15b
FORMER UST AREA (UST 0006, UST 0009)

AOC No. 10
TRUCK LOADING RACK AREA

AOC No. 8
PROPOSED CONTAINER STORAGE AREA

AOC No. 13
FORMER OILY WATER LAGOONS

AOC No. 7
COLONIAL PIPELINE AREA

AOC No. 12
DETENTION BASIN

AOC No. 5
AERATION BASIN AREA

AOC 16b
TERMINAL LOADING RACK AREA

VACANT LAND

LIMIT OF SECOND RESERVE TERMINAL

STORAGE AREA

NORTH DOCK

SOUTH DOCK

MARINE VAPOR RECOVERY SYSTEM

STATEN ISLAND SOUND (A.K.A. ARTHUR KILL)

BULKHEAD

OUTFALL FROM WATER TREATMENT PLANT

12" TEXAS EASTERN

10" TEXAS EASTERN

BUCKEYE PIPELINE

TRANS CONTINENTAL PIPELINE

NORTH DRAINAGE DITCH

MUNICIPAL DITCH (NORTH DRAINAGE DITCH)

SMITH CREEK

MAXIMUM EXTENT OF OILY WATER LAGOON

LEGEND

- MONITORING WELL LOCATION
- RECOVERY WELL
- PROPOSED TEMPORARY WELL
- PROPOSED SOIL SAMPLE
- PROPOSED TEMPORARY WELL AND SOIL SAMPLE
- PROPOSED DEEP MONITORING WELL

- TRANS CONTINENTAL PIPELINE (WILLIAMS)
- BUCKEYE PIPELINE
- COLONIAL PIPELINE
- 12" TEXAS EASTERN (SPECTRA)
- 10" TEXAS EASTERN (SPECTRA)
- RAILROAD

SURFACE WATER

NM NOT MEASURED

NOTES:

1. AOC – AREA OF CONCERN
2. SWMU – SOLID WASTE MANAGEMENT UNIT
3. UST – UNDERGROUND STORAGE TANK
4. AST – ABOVE GROUND STORAGE TANK
5. SOCONY/MOBILE LINE IS THE OLD COLONIAL LINE. THIS WAS A COLONIAL PIPELINE TIE IN FOR SOCONY MOBIL. IT WAS ABANDONED IN PLACE. IT WAS CAPPED OFF AT THE SOUTH DOCK. THE LINE UNDER ARTHUR KILL IS UNDER NITROGEN BLANKET.
6. AOC BORDERS WILL MODIFY IN ACCORDANCE WITH FIELD INVESTIGATION RESULTS
7. AOC 17 EXTENT UNKNOWN, BETTER DEFINED THROUGH INVESTIGATION

FIGURE 2

SITE MAP

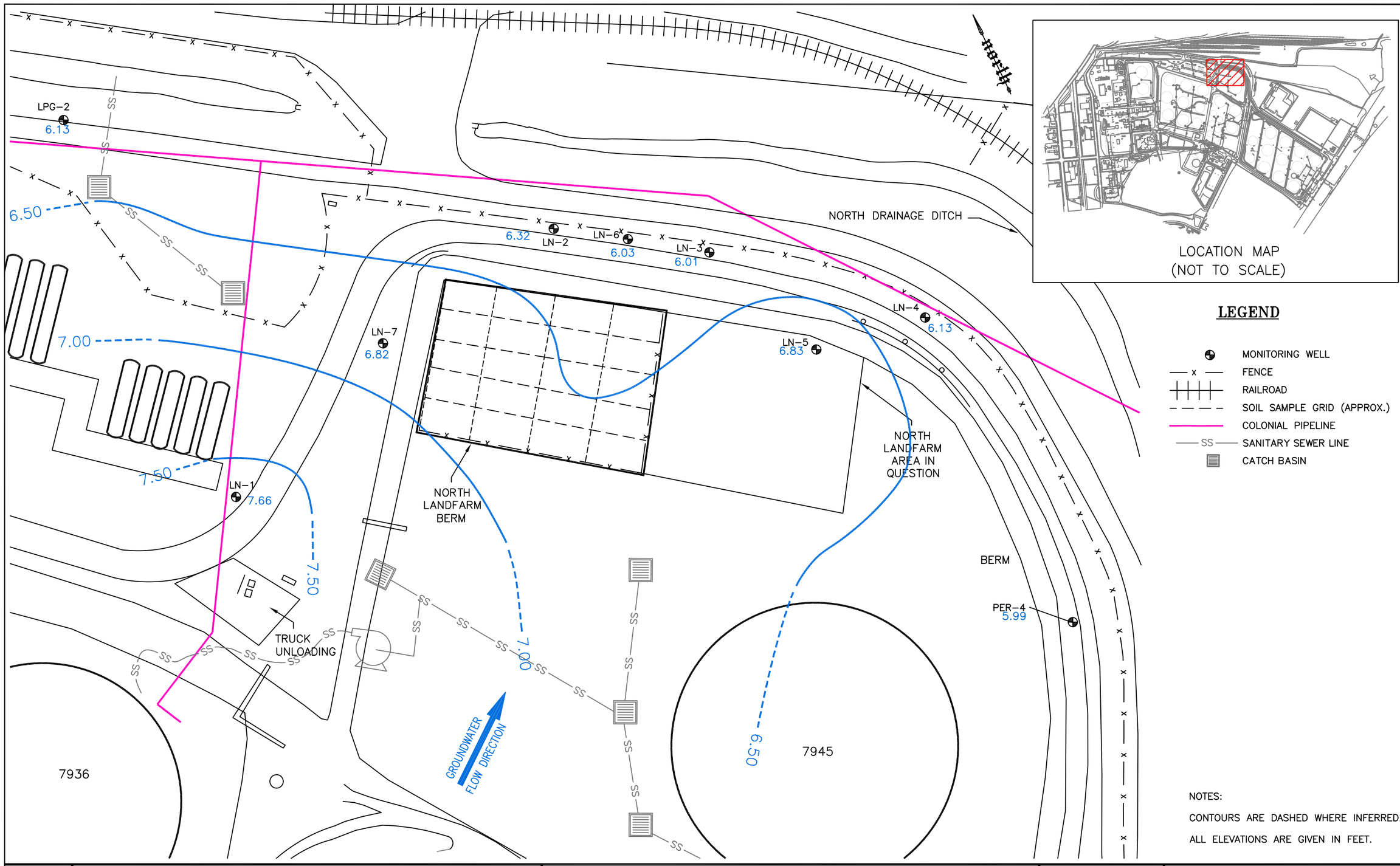
HESS CORPORATION
750 CLIFF ROAD
PORT READING, NEW JERSEY

DRAWN BY: B.S.

DATE: 10/6/2011

0 150
SCALE IN FEET

EnviroTrac
ENVIRONMENTAL SERVICES
400E CORPORATE COURT, So. PLAINFIELD NJ 07080
PHONE: (908)757-1900 FAX: (908)757-0017



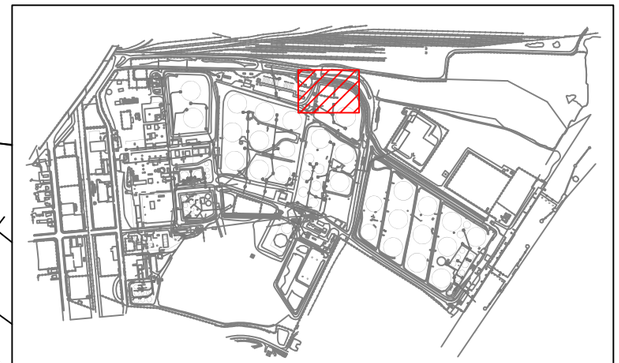
NOTES:

CONTOURS ARE DASHED WHERE INFERRED.

ALL ELEVATIONS ARE GIVEN IN FEET.

FIGURE # 3	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY	GROUNDWATER CONTOUR MAP (NORTH LANDFARM) JANUARY 18, 2012	0 60 SCALE IN FEET
		DRAWN BY: B.S.	REVISION DATE: 6/25/12

EnviroTrac
ENVIRONMENTAL SERVICES
400E CORPORATE COURT, So. PLAINFIELD NJ 07080
PHONE: (908)757–1900 FAX: (908)757–0017



LOCATION MAP
(NOT TO SCALE)

LEGEND

- MONITORING WELL
- FENCE
- RAILROAD
- SOIL SAMPLE GRID (APPROX.)
- COLONIAL PIPELINE
- SANITARY SEWER LINE
- CATCH BASIN
- NG — NOT GAGED

LPG–2
NG

LN–1
7.32

LN–2
6.09

LN–3
6.37

LN–4
5.97

LN–5
6.88

LN–6
5.87

LN–7
6.53

PER–4
NG

6.00

6.50

7.00

NORTH DRAINAGE DITCH

NORTH LANDFARM AREA IN QUESTION

NORTH LANDFARM BERM

BERM

GROUNDWATER FLOW DIRECTION

TRUCK UNLOADING

7936

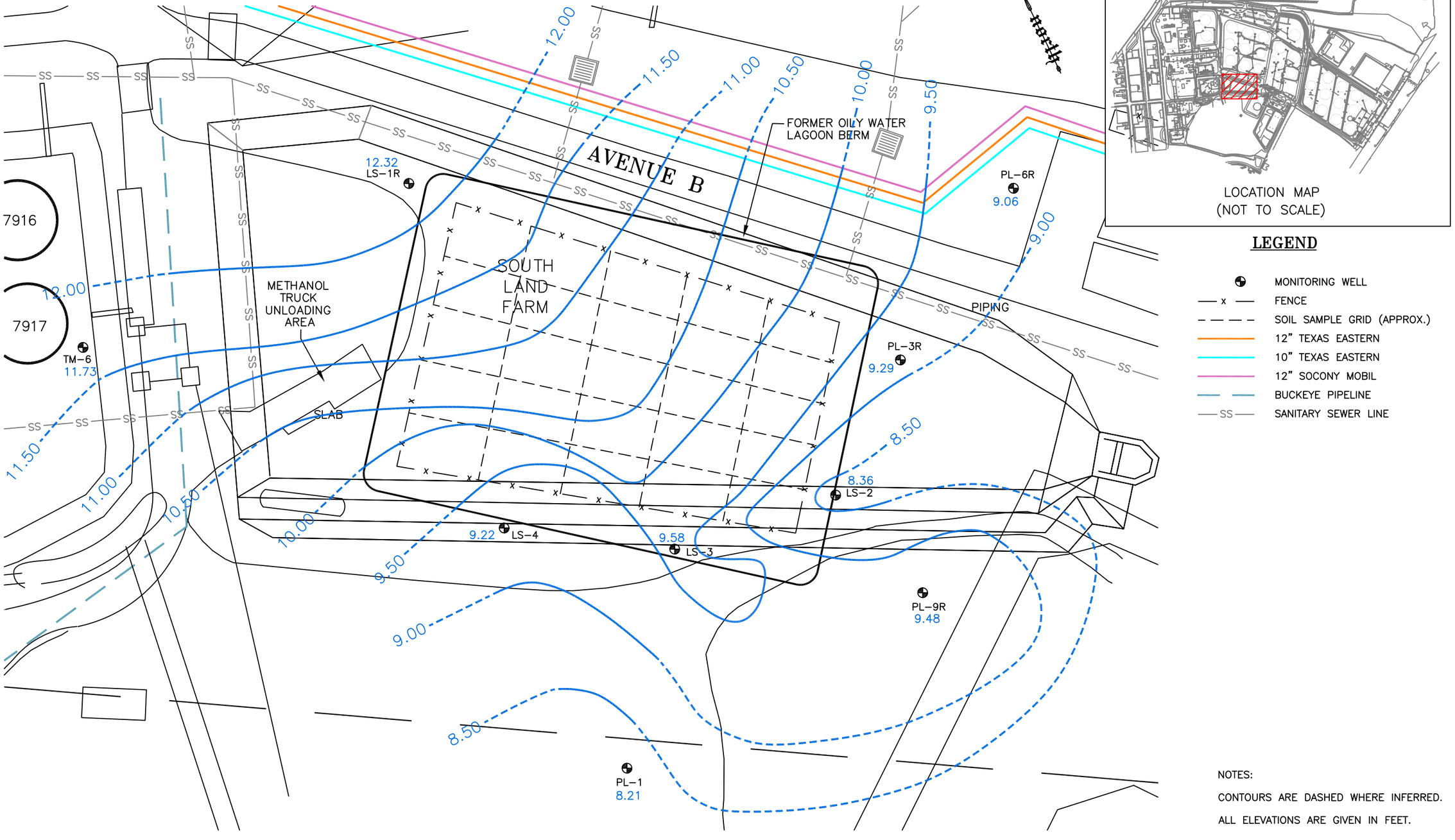
7945

NOTES:

CONTOURS ARE DASHED WHERE INFERRED.

ALL ELEVATIONS ARE GIVEN IN FEET.

FIGURE # 4	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY	GROUNDWATER CONTOUR MAP (NORTH LANDFARM) APRIL 27, 2012	0 60 SCALE IN FEET	EnviroTrac ENVIRONMENTAL SERVICES 400E CORPORATE COURT, So. PLAINFIELD NJ 07080 PHONE: (908)757–1900 FAX: (908)757–0017
		DRAWN BY: B.S.	REVISION DATE: 5/4/12	



LOCATION MAP
(NOT TO SCALE)

LEGEND

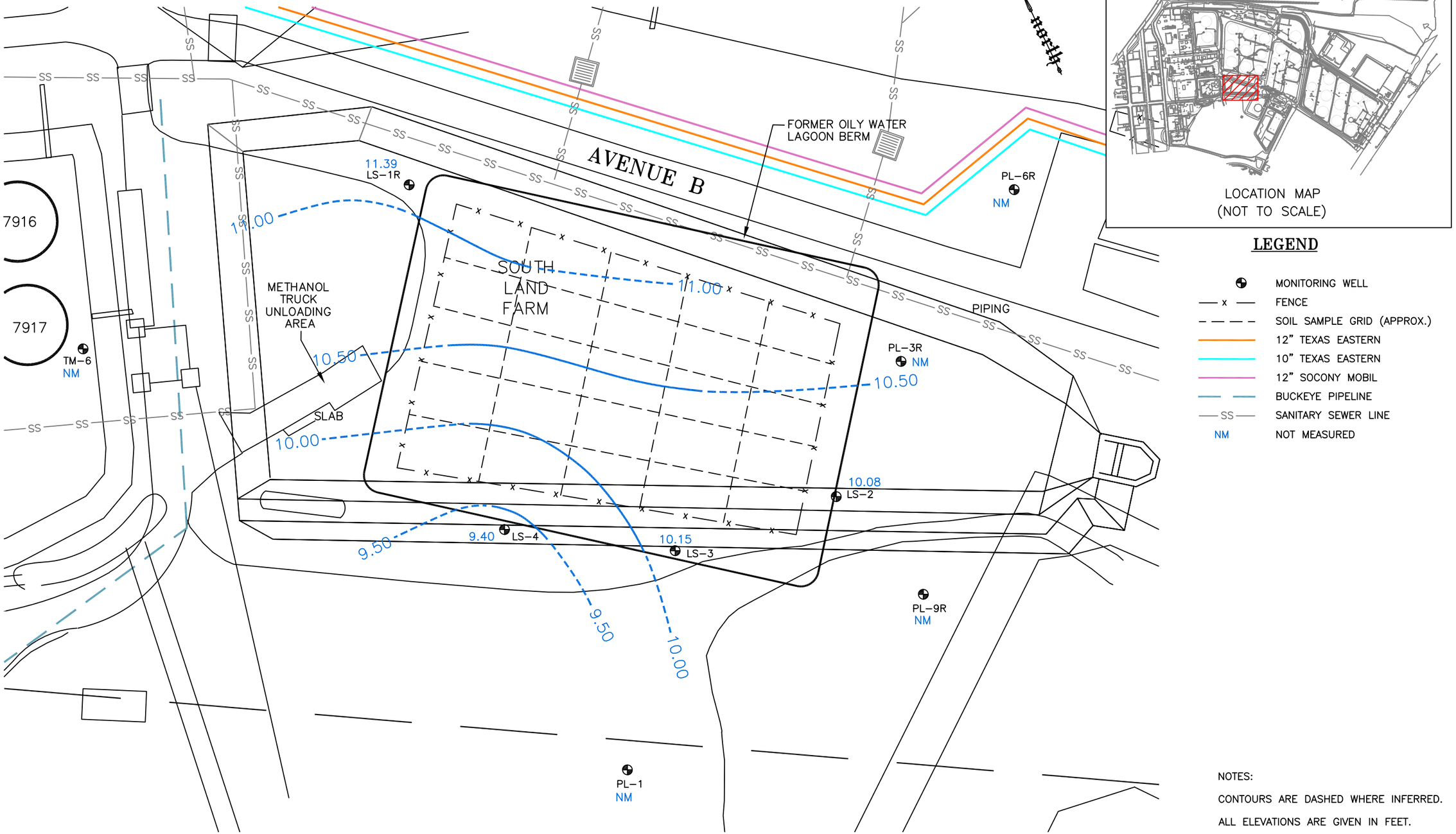
- MONITORING WELL
- FENCE
- SOIL SAMPLE GRID (APPROX.)
- 12" TEXAS EASTERN
- 10" TEXAS EASTERN
- 12" SOCONY MOBIL
- BUCKEYE PIPELINE
- SANITARY SEWER LINE

NOTES:

CONTOURS ARE DASHED WHERE INFERRED.

ALL ELEVATIONS ARE GIVEN IN FEET.

FIGURE #				
5	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY	GROUNDWATER CONTOUR MAP (SOUTH LANDFARM) JANUARY 19, 2012	0 60 SCALE IN FEET	EnviroTrac ENVIRONMENTAL SERVICES 400E CORPORATE COURT, So. PLAINFIELD NJ 07080 PHONE: (908)757-1900 FAX: (908)757-0017
		DRAWN BY: B.S.	REVISION DATE: 6/8/12	



LOCATION MAP
(NOT TO SCALE)

LEGEND

- MONITORING WELL
- x — FENCE
- SOIL SAMPLE GRID (APPROX.)
- 12" TEXAS EASTERN
- 10" TEXAS EASTERN
- 12" SOCONY MOBIL
- BUCKEYE PIPELINE
- SS — SANITARY SEWER LINE
- NM — NOT MEASURED

NOTES:

CONTOURS ARE DASHED WHERE INFERRED.

ALL ELEVATIONS ARE GIVEN IN FEET.

FIGURE # 6

HESS CORPORATION
750 CLIFF ROAD
PORT READING, NEW JERSEY

GROUNDWATER CONTOUR MAP (SOUTH LANDFARM)
APRIL 25, 2012

DRAWN BY: B.S.

REVISION DATE: 6/8/12

0 60
SCALE IN FEET

EnviroTrac
ENVIRONMENTAL SERVICES
400E CORPORATE COURT, So. PLAINFIELD NJ 07080
PHONE: (908)757-1900 FAX: (908)757-0017

MUNICIPAL DITCH
(NORTH DRAINAGE DITCH)

North

BERM

PER–4

7945

SS

PIPE

GATE

GATE

1216

BERM

1215

L1–3
4.51

L1–4
4.56

L1–2
4.52

BG–3
NM

BG–2
6.84

STORAGE
AREA

SP–3
8.65

SP–1
8.24

L1–1
6.87

SP–2
7.95

TF–1
8.10

TF–2
8.67

TF–3
NM

5.00
5.50
6.00
6.50
7.00
7.50
8.00
8.50

LOCATION MAP
(NOT TO SCALE)

LEGEND

- MONITORING WELL
- RECOVERY WELL
- FENCE
- RAILROAD
- SANITARY SEWER LINE
- CATCH BASIN
- COLONIAL PIPELINE
- NM NOT MEASURED

NOTES:

CONTOURS ARE DASHED WHERE INFERRED.

ALL ELEVATIONS ARE GIVEN IN FEET.

FIGURE # 7	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY	HESS	GROUNDWATER CONTOUR MAP (No. 1 LANDFARM) JANUARY 19, 2012 DRAWN BY: B.S. / REVISION DATE: 6/11/12	0 100 SCALE IN FEET

EnviroTrac
ENVIRONMENTAL SERVICES
400E CORPORATE COURT, So. PLAINFIELD NJ 07080
PHONE: (908)757–1900 FAX: (908)757–0017

MUNICIPAL DITCH
(NORTH DRAINAGE DITCH)

North

BERM

PER–4

7945

SS

PIPE

GATE

5.00

5.50

6.00

6.50

BG–2
6.92

L1–2
4.58

L1–3
4.65

L1–4
4.77

BG–3
NM

STORAGE
AREA

SP–3
NM

GATE

NM
SP–1

L1–1
6.13

SP–2
NM

1216

NM
TF–1

TF–3

TF–2
NM

NM

BERM

1215

LOCATION MAP
(NOT TO SCALE)

LEGEND

- MONITORING WELL
- RECOVERY WELL
- FENCE
- RAILROAD
- SANITARY SEWER LINE
- CATCH BASIN
- COLONIAL PIPELINE
- NM NOT MEASURED

NOTES:

CONTOURS ARE DASHED WHERE INFERRED.

ALL ELEVATIONS ARE GIVEN IN FEET.

FIGURE #				
8	HESS CORPORATION 750 CLIFF ROAD PORT READING, NEW JERSEY	GROUNDWATER CONTOUR MAP (No. 1 LANDFARM) APRIL 24, 2012	0 100 SCALE IN FEET	EnviroTrac ENVIRONMENTAL SERVICES 400E CORPORATE COURT, So. PLAINFIELD NJ 07080 PHONE: (908)757–1900 FAX: (908)757–0017
		DRAWN BY: B.S.	REVISION DATE: 6/11/12	

Table 1
Well Construction Summary
Hess Corporation - Port Reading
North Landfarm

Well #	LN-1	LN-2	LN-3	LN-4	LN-5	LN-6	LN-7	LPG-2	PER-4
Well Permit	26-08130-0	26-07562-8	26-07563-6	26-08131-1	E201013003	E201013004	E201013005	26-6394-1	26-6393-4
Total Depth	13.57	11.57	13.25	14.19	16.64	16.76	16.80	9.64	14.10
Well Diameter (inches)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Top of Casing Elevation	12.19	12.21	11.34	13.10	12.85	14.56	15.75	9.30	12.78
Ground Elevation	10.32	10.42	10.44	11.24	IU	IU	IU	IU	IU
Depth of Well Screen	4.98	7.00	5.25	4.00	4.00	4.00	4.00	3.00	3.69

Notes:
1) Unless otherwise designated, all measurments in feet.
2) IU - Information Unknown

TABLE 2
Field Parameters
HESS CORPORATION - PORT READING, NJ
North Landfarm

Monitoring Date	January 18, 2012											
Weather conditions	Sunny, 30-40's											
Well ID number	LN - 1	LN - 2	LN - 3	LN - 4	LN - 5	LN - 6	LN - 7	LPG-2	PER-4	SP-1	SP-2	SP-3
Well permit	26-08130-0	26-07562-8	26-07563-6	26-08131-1	E201013003	E201013004	E201013005	26-6394-1	26-6393-4			
Ground elevation (ft)	10.32	10.42	10.44	11.24	NA	NA	NA	NA	NA	NA	NA	NA
Well diameter (in)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	2.0	2.0	2.0
Top of casing elevation (ft)	12.19	12.21	11.34	13.55	12.85	14.56	15.75	9.30	12.78	14.07	15.24	14.66
Time gauged	12:15	9:47	10:08	9:08	12:06	11:06	11:14	13:15	13:08	NM	NM	NM
Depth to product from TOC (ft)	NP	NP	NP	NP	NP	NP	NP	NP	NP	NM	NM	NM
Depth to water from TOC (ft)	4.53	5.89	5.33	7.42	6.02	8.53	8.93	3.17	6.79	NS	NS	NS
Depth to bottom from TOC (ft)	13.40	11.48	13.25	14.19	17.01	17.15	17.15	9.64	14.10	14.11	14.69	14.90
Depth from TOC to TOS (ft)	4.98	7.00	5.25	4.00	4.00	4.00	4.00	3.00	3.69	3.69	3.69	3.69
Ground Water Elevation (ft)	7.66	6.32	6.01	6.13	6.83	6.03	6.82	6.13	5.99	NM	NM	NM
Product/sheen on probe/bailer (Y/N)	No	No	No	No	No	No	No	No	No	No	No	No
Linear Feet of Water in well (estimate)	8.87	5.59	7.92	6.77	10.99	8.62	8.22	6.47	7.31	NM	NM	NM
Water volume in well (estimate) (gal)	5.77	3.63	5.15	4.40	7.14	5.60	5.34	4.21	4.75	NM	NM	NM
LPH thickness (ft)	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
pH (before purging) (S.U.)	NM	NM	7.45	7.28	7.35	7.62	NS	NM	NM	NM	NM	NM
DO (before purging) (mg/l)	NM	NM	7.97	6.68	10.34	11.07	NS	NM	NM	NM	NM	NM
Temperature (before purging) (ºCelsius)	NM	NM	15.53	12.57	6.95	13.04	NS	NM	NM	NM	NM	NM
Specific Conductance (before purging) (µs/cm)	NM	NM	1.47	0.667	0.091	0.842	NS	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	NM	NM	Brown Tint	Slight Tint	Clear	Brown Tint	NS	NM	NM	NM	NM	NM
Purge start time	12:15	9:47	10:08	9:08	12:06	11:06	11:14	NM	NM	NM	NM	NM
Purge end time	12:40	10:22	10:32	9:42	12:43	11:39	11:38	NM	NM	NM	NM	NM
Purge length (minutes)	0:25	0:35	0:24	0:34	0:37	0:33	0:24	NM	NM	NM	NM	NM
Purge method (bailer/pump)	Pump	Pump	Pump	Pump	Pump	Pump	Pump	NM	NM	NM	NM	NM
pH (while purging) (S.U.)	8.67	8.69	NM	7.58	7.3	7.59	7.46	NM	NM	NM	NM	NM
DO (while purging) (mg/l)	0	0	NM	1.52	9.42	9.18	0	NM	NM	NM	NM	NM
Temperature (while purging) (ºCelsius)	11.78	11.07	NM	12.8	6.7	12.76	12.08	NM	NM	NM	NM	NM
Specific Conductance (while purging) (µs/cm)	1.84	0.406	NM	0.784	0.083	0.868	1.23	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	Cloudy	Cloudy	NM	Clear	Clear	Brown Tint	Clear	NM	NM	NM	NM	NM
pH (after purging) (S.U.)	7.51	7.2	7.51	7.33	7.23	7.39	7.49	NM	NM	NM	NM	NM
DO (after purging) (mg/l)	0	0	5.79	1.2	5.59	2.54	0	NM	NM	NM	NM	NM
Temperature (after purging) (ºCelsius)	11.66	11.39	13.82	12.51	5.54	13.68	12.22	NM	NM	NM	NM	NM
Specific Conductance (after purging) (µs/cm)	1.2	0.514	1.14	0.785	0.067	0.902	1.24	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	Cloudy	Cloudy	Brown Tint	Clear	Clear	Slight Tint	Clear	NM	NM	NM	NM	NM
Depth from TOC to water (before sampling)	5.56	6	5.87	7.54	7.6	8.65	8.93	NM	NM	NM	NM	NM
Time sampled	12:53	10:34	10:42	9:48	12:50	11:45	11:46	NM	NM	NM	NM	NM
pH (after sampling) (S.U.)	7.18	7	7.9	7.5	7.19	7.49	7.57	NM	NM	NM	NM	NM
DO (after sampling) (mg/l)	0	0	5.09	10.18	8.57	1.71	0	NM	NM	NM	NM	NM
Temperature (after sampling) (ºCelsius)	10.44	11.16	13.08	11.39	5.5	12.99	12.15	NM	NM	NM	NM	NM
Specific Conductance (after sampling) (µs/cm)	1.71	0.664	1.23	0.764	0.069	0.87	1.23	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	Cloudy	Cloudy	Brown Tint	Clear	Clear	Slight Tint	Clear	NM	NM	NM	NM	NM
Depth from TOC to water (after sampling)	5.77	6	5.9	7.52	7.68	8.5	8.95	NM	NM	NM	NM	NM
COMMENTS:												

Notes:

G - Good, P - Poor, Y - Yes, N - No, NM - Not Measured, N - Not Found, O - Other, TOC - Top of Casing, TOS - Top of Screen, NP - No Product, NA - Not Available

TABLE 3
Field Parameters
HESS CORPORATION - PORT READING, NJ
North Landfarm

Monitoring Date	April 24, 2012								
Weather conditions									
Well ID number	LN - 1	LN - 2	LN - 3	LN - 4	LN - 5	LN - 6	LN - 7	LPG-2	PER-4
Well permit	26-08130-0	26-07562-8	26-07563-6	26-08131-1	E201013003	E201013004	E201013005	26-6394-1	26-6393-4
Ground elevation (ft)	10.32	10.42	10.44	11.24	NA	NA	NA	NA	NA
Well diameter (in)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Top of casing elevation (ft)	12.19	12.21	11.34	13.10	12.85	14.56	15.75	9.30	12.78
Time gauged	9:17	14:10	11:15	10:36	12:58	12:06	11:55	NM	NM
Depth to product from TOC (ft)	NP	NP	NP	NP	NS	NP	NP	NM	NM
Depth to water from TOC (ft)	4.87	6.12	4.97	7.58	5.95	8.69	9.22	NM	NM
Depth to bottom from TOC (ft)	13.57	11.57	13.25	14.19	17	17.10	17.16	9.64	14.10
Depth from TOC to TOS (ft)	4.98	7.00	5.25	4.00	4.00	4.00	4.00	3.00	3.69
Ground Water Elevation (ft)	7.32	6.09	6.37	5.52	6.90	5.87	6.53	NM	NM
Product/sheen on probe/bailer (Y/N)	No	No	No	No	No	No	No	NM	NM
Linear Feet of Water in well (estimate)	8.70	5.45	8.28	6.61	11.05	8.41	7.94	NM	NM
Water volume in well (estimate) (gal)	5.66	3.54	5.38	4.30	7.18	5.47	5.16	NM	NM
LPH thickness (ft)	NP	NP	NP	NP	NP	NP	NP	NM	NM
pH (before purging) (S.U.)	6.77	7.02	6.59	6.93	4.49	6.92	5.62	NM	NM
DO (before purging) (mg/l)	10.82	7.57	8.5	7.43	13.01	6.07	6.17	NM	NM
Temperature (before purging) (ºCelcius)	16.88	15.14	15.29	15.74	16.5	15.24	15.79	NM	NM
Specific Conductance (before purging) (µs/cm)	1.98	0.709	6.02	0.815	0.141	1.02	0.313	NM	NM
Appearance (ie. color, clarity, turbid)	NM	NM	NM	NM	NM	NM	NM	NM	NM
Purge start time	9:17	14:10	12:25	11:30	10:00	13:20	8:36	NM	NM
Purge end time	9:40	14:45	12:55	12:05	10:50	14:00	9:05	NM	NM
Purge length (minutes)	0:23	0:35	0:30	0:35	0:50	0:40	0:29	NM	NM
Purge method (bailer/pump)	Pump	Pump	Pump	Pump	Pump	Pump	Pump	NM	NM
Purge rate (gal/min)	0.03	0.04	0.03	0.04	0.04	0.04	0.03	NM	NM
pH (while purging) (S.U.)	6.79	7.08	6.6	7.03	5.46	6.9	5.67	NM	NM
DO (while purging) (mg/l)	4.39	4.02	6.56	4.7	5.51	3.85	3.34	NM	NM
Temperature (while purging) (ºCelcius)	17.16	15.26	15.66	16.21	16.4	15.34	15.22	NM	NM
Specific Conductance (while purging) (µs/cm)	1.99	0.702	6	0.816	0.136	1	0.324	NM	NM
Appearance (ie. color, clarity, turbid)	NM	NM	NM	NM	NM	NM	NM	NM	NM
pH (after purging) (S.U.)	6.79	7.06	6.61	7.05	6.17	6.92	5.68	NS	NS
DO (after purging) (mg/l)	3.69	3.04	5.58	4.13	3.9	3.27	3.24	NS	NS
Temperature (after purging) (ºCelcius)	17.19	15.27	15.82	16.29	16.46	15.34	15.32	NS	NS
Specific Conductance (after purging) (µs/cm)	1.99	7.05	6.03	0.817	0.14	1	0.326	NS	NS
Appearance (ie. color, clarity, turbid)	NM	NM	NM	NM	NM	NM	NM	NM	NM
Depth from TOC to water (before sampling)	4.87	6.12	4.97	7.58	5.95	8.69	9.22	NM	NM
Time sampled	9:45	14:50	13:00	12:10	10:55	14:05	9:10	NM	NM
pH (after sampling) (S.U.)	6.78	7.05	6.6	7.05	6.19	6.93	5.68	NM	NM
DO (after sampling) (mg/l)	3.66	2.95	5.47	4.07	3.82	3.19	3.23	NM	NM
Temperature (after sampling) (ºCelcius)	17.19	15.28	15.87	16.29	16.46	15.35	15.4	NM	NM
Specific Conductance (after sampling) (µs/cm)	1.98	0.705	6.06	8.17	0.14	1	0.327	NM	NM
Appearance (ie. color, clarity, turbid)	NM	NM	NM	NM	NM	NM	NM	NM	NM
Depth from TOC to water (after sampling)	4.87	6.12	4.97	7.58	5.95	8.69	9.22	NM	NM
COMMENTS:									

Notes:

G - Good, P - Poor, Y - Yes, N - No, NM - Not Measured, N - Not Found, O - Other, TOC - Top of Casing, TOS - Top of Screen, NP - No Product, NA - Not Available

Table 4
Groundwater Sampling Summary Table - Volatiles
North Landfarm (Area of Concern #1)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

Volatiles									
Sample ID	Date	Benzene	1,2-Dichlorobenzene	Ethylbenzene	Toluene	Vinyl Chloride	Xylenes (total)	Methyl Tert Butyl Ether	Tertiary Butyl Alcohol
NJDEP GWQS		1	600	700	600	1	1,000	70	100
LN-1	7/19/2002	ND	ND	ND	ND	ND	ND	ND	ND
	1/24/2003	ND	ND	ND	ND	ND	ND	ND	ND
	7/25/2003	ND	ND	ND	ND	ND	ND	ND	ND
	1/24/2004	ND	ND	ND	ND	ND	ND	ND	ND
	7/30/2004	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/2005	ND	ND	ND	ND	ND	ND	ND	ND
	7/19/2006	ND	ND	ND	ND	ND	ND	1.5	ND
	7/26/2006	ND	ND	ND	ND	ND	ND	1.5	ND
	1/23/2007	ND	ND	ND	ND	ND	ND	3.7	ND
	7/27/2007	ND	ND	ND	ND	ND	ND	2.6	ND
	1/10/2008	ND	ND	1.1	ND	ND	ND	ND	ND
	7/21/2008	ND	ND	ND	ND	ND	ND	1.2	ND
	1/21/2009	ND	ND	ND	ND	ND	ND	1.1	ND
	7/28/2009	ND	ND	ND	ND	ND	ND	1	ND
	10/26/2009	ND	ND	ND	ND	ND	ND	1.3	ND
	1/27/2010	ND	ND	ND	ND	ND	ND	0.94	ND
	4/5/2010	ND	ND	ND	ND	ND	ND	0.91	ND
	7/21/2010	ND	ND	ND	ND	ND	ND	1.0	ND
	10/26/2010	ND	ND	ND	ND	ND	ND	1.5	ND
	1/19/2011	ND	ND	ND	ND	ND	ND	1.1	ND
	4/20/2011	ND	ND	ND	ND	ND	ND	0.74	ND
	7/21/2011	ND	ND	ND	ND	ND	ND	1.0	ND
	10/20/2011	ND	ND	ND	ND	ND	ND	1.3	ND
	1/18/2012	ND	ND	ND	ND	ND	ND	0.59 J	ND
	4/24/2012	ND	ND	ND	ND	ND	ND	0.63 J	ND

All data is reported in ug/kg unless otherwise noted
ND- Not Detected
NA- Not Analyzed/ Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value

Table 4
Groundwater Sampling Summary Table - Volatiles
North Landfarm (Area of Concern #1)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

Volatiles									
Sample ID	Date	Benzene	1,2-Dichlorobenzene	Ethylbenzene	Toluene	Vinyl Chloride	Xylenes (total)	Methyl Tert Butyl Ether	Tertiary Butyl Alcohol
NJDEP GWQS		1	600	700	600	1	1,000	70	100
LN-2	7/19/2002	ND	ND	ND	ND	ND	ND	ND	ND
	1/24/2003	ND	ND	ND	ND	ND	ND	ND	ND
	7/25/2003	ND	ND	ND	ND	ND	ND	ND	ND
	1/24/2004	ND	ND	ND	ND	ND	ND	ND	ND
	7/30/2004	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/2005	ND	ND	ND	ND	ND	ND	ND	ND
	7/19/2006	ND	ND	ND	ND	ND	ND	ND	ND
	7/26/2006	ND	ND	ND	ND	ND	ND	0.74	ND
	1/23/2007	ND	ND	ND	ND	ND	ND	ND	ND
	7/27/2007	ND	ND	ND	ND	ND	ND	0.74	ND
	1/10/2008	ND	ND	ND	ND	ND	ND	ND	ND
	7/21/2008	ND	ND	ND	ND	ND	ND	ND	ND
	1/21/2009	ND	ND	ND	ND	ND	ND	ND	ND
	7/28/2009	ND	ND	ND	ND	ND	ND	ND	11.6
	10/26/2009	ND	ND	ND	ND	ND	ND	0.61	33.2
	1/27/2010	ND	ND	ND	ND	ND	ND	0.5	21
	4/5/2010	ND	ND	ND	ND	ND	ND	ND	14.2
	7/21/2010	ND	ND	ND	ND	ND	ND	ND	ND
	10/26/2010	ND	ND	ND	ND	ND	ND	0.44	15.8
	1/19/2011	ND	ND	ND	ND	ND	ND	0.33	ND
	4/20/2011	ND	ND	ND	ND	ND	ND	ND	ND
	7/21/2011	ND	ND	ND	ND	ND	ND	ND	ND
	10/20/2011	ND	ND	ND	ND	ND	ND	0.76J	39.7
	1/18/2012	ND	ND	ND	ND	ND	ND	ND	ND
	4/24/2012	ND	ND	ND	ND	ND	ND	ND	ND

All data is reported in ug/kg unless otherwise noted
ND- Not Detected
NA- Not Analyzed/ Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value

Table 4
Groundwater Sampling Summary Table - Volatiles
North Landfarm (Area of Concern #1)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

Volatiles									
Sample ID	Date	Benzene	1,2-Dichlorobenzene	Ethylbenzene	Toluene	Vinyl Chloride	Xylenes (total)	Methyl Tert Butyl Ether	Tertiary Butyl Alcohol
NJDEP GWQS		1	600	700	600	1	1,000	70	100
LN-3	7/19/2002	ND	ND	ND	ND	ND	ND	ND	ND
	1/24/2003	ND	ND	ND	ND	ND	ND	ND	ND
	7/25/2003	ND	ND	ND	ND	ND	ND	ND	ND
	1/24/2004	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/2005	ND	0.19	ND	ND	ND	ND	ND	ND
	7/19/2006	0.22	ND	ND	ND	ND	ND	ND	ND
	7/26/2006	ND	ND	ND	ND	ND	ND	1.2	52.7
	1/23/2007	ND	ND	ND	ND	ND	ND	0.68	35.8
	7/27/2007	ND	ND	ND	ND	ND	ND	0.8	30.3
	1/10/2008	ND	ND	ND	ND	ND	ND	0.63	44.5
	7/21/2008	ND	ND	ND	ND	ND	ND	0.59	17.4
	1/21/2009	ND	ND	ND	ND	ND	0.36	0.78	38
	7/28/2009	0.37	ND	ND	ND	ND	ND	0.69	40.7
	10/26/2009	ND	ND	ND	ND	ND	ND	0.36	11.2
	1/27/2010	ND	ND	ND	ND	ND	ND	0.5	17.4
	4/5/2010	ND	ND	ND	ND	ND	ND	0.36	19.7
	7/21/2010	ND	ND	ND	ND	ND	ND	ND	ND
	10/26/2010	ND	ND	ND	ND	ND	ND	0.28	ND
	1/19/2011	ND	ND	ND	ND	ND	ND	ND	ND
	4/20/2011	ND	ND	ND	ND	ND	ND	0.48	23.8
	7/21/2011	ND	ND	ND	0.34 J	ND	0.53 J	0.52 J	19.6 J
	10/20/2011	ND	ND	ND	ND	ND	0.61 J	0.55 J	ND
	1/18/2012	ND	ND	ND	ND	ND	ND	0.29 J	ND
	4/24/2012	ND	ND	ND	ND	ND	ND	ND	ND

All data is reported in ug/kg unless otherwise noted
ND- Not Detected
NA- Not Analyzed/ Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value

Table 4
Groundwater Sampling Summary Table - Volatiles
North Landfarm (Area of Concern #1)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

Volatiles									
Sample ID	**Date**	**Benzene**	**1,2-Dichlorobenzene**	**Ethylbenzene**	**Toluene**	**Vinyl Chloride**	**Xylenes (total)**	**Methyl Tert Butyl Ether**	**Tertiary Butyl Alcohol**
NJDEP GWQS		**1**	**600**	**700**	**600**	**1**	**1,000**	**70**	**100**
LN-4	7/19/2002	ND	ND	ND	0.21	ND	1.1	ND	ND
	1/24/2003	ND	ND	ND	ND	ND	ND	ND	ND
	7/25/2003	ND	ND	ND	ND	ND	ND	ND	ND
	1/24/2004	ND	ND	ND	ND	ND	ND	ND	ND
	7/30/2004	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/2005	ND	ND	ND	ND	ND	ND	ND	ND
	7/19/2006	ND	ND	ND	ND	ND	ND	ND	ND
	7/26/2006	ND	ND	ND	ND	ND	0.52	1.9	**162**
	1/23/2007	0.29	ND	ND	ND	ND	0.32	1.4	**127**
	7/27/2007	0.53	ND	ND	ND	ND	ND	1.6	**106**
	1/10/2008	ND	ND	ND	ND	ND	ND	0.54	ND
	7/21/2008	ND	ND	ND	ND	ND	ND	0.73	27.5
	1/21/2009	ND	ND	ND	ND	ND	0.36	0.78	38.1
	7/28/2009	ND	ND	ND	ND	ND	ND	ND	ND
	10/26/2009	ND	ND	ND	ND	ND	ND	1.1	67.8
	1/27/2010	ND	ND	ND	ND	ND	ND	1.2	41.6
	4/5/2010	ND	ND	ND	ND	ND	ND	0.91	29.5
	7/21/2010	ND	ND	ND	ND	ND	ND	0.45	11.2
	10/26/2010	ND	ND	ND	ND	ND	0.92	0.86	34.2
	1/19/2011	ND	ND	ND	ND	ND	ND	0.33	ND
	4/20/2011	ND	ND	ND	ND	ND	ND	0.73	18.8
	7/21/2011	ND	ND	ND	0.27 J	ND	0.37 J	0.85 J	17.9 J
	10/20/2011	0.43 J	ND	ND	0.29 J	ND	0.92 J	1	44.2
	1/18/2012	ND	ND	ND	ND	ND	ND	0.58 J	18.9 J
	4/24/2012	0.52 J	ND	ND	ND	ND	0.58 J	0.58 J	ND

All data is reported in ug/kg unless otherwise noted
ND- Not Detected
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NR- Not Reported
J- Estimate Value

Table 4
Groundwater Sampling Summary Table - Volatiles
North Landfarm (Area of Concern #1)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

Volatiles									
Sample ID	**Date**	**Benzene**	**1,2-Dichlorobenzene**	**Ethylbenzene**	**Toluene**	**Vinyl Chloride**	**Xylenes (total)**	**Methyl Tert Butyl Ether**	**Tertiary Butyl Alcohol**
NJDEP GWQS		**1**	**600**	**700**	**600**	**1**	**1,000**	**70**	**100**
LN-5	10/26/2010	ND	ND	ND	ND	ND	ND	ND	ND
	1/19/2011	Could not locate due to snow							
	4/20/2011	ND	ND	ND	ND	ND	ND	ND	ND
	7/21/2011	ND	ND	ND	0.26 J	ND	ND	ND	ND
	10/20/2011	ND	ND	ND	ND	ND	ND	ND	ND
	1/18/2012	ND	ND	ND	ND	ND	ND	ND	ND
	4/24/2012	ND	ND	ND	ND	ND	ND	ND	ND
LN-6	10/26/2010	ND	ND	ND	ND	ND	ND	ND	ND
	1/19/2011	ND	ND	0.22	ND	ND	2.3	ND	ND
	4/20/2011	ND	ND	ND	ND	ND	ND	ND	ND
	7/21/2011	ND	ND	ND	ND	ND	ND	ND	ND
	10/20/2011	ND	ND	ND	ND	ND	ND	0.62 J	22.5 J
	1/18/2012	ND	ND	ND	ND	ND	ND	ND	ND
	4/24/2012	ND	ND	ND	ND	ND	ND	0.29 J	ND
LN-7	10/26/2010	ND	ND	ND	ND	ND	ND	0.59	32.2
	1/19/2011	ND	ND	ND	ND	ND	ND	0.34	20.7
	4/20/2011	ND	ND	ND	ND	ND	ND	ND	ND
	7/21/2011	ND	ND	ND	ND	ND	ND	0.30 J	ND
	10/20/2011	**12.1**	ND	0.30 J	0.60 J	ND	1.1	1.2	42.0
	1/18/2012	ND	ND	ND	ND	ND	ND	1.0	28.0
	4/24/2012	ND	ND	ND	ND	ND	ND	0.38 J	12.8 J

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Table 5
Groundwater Sampling Summary Table - Metals
North Landfarm (Area of Concern #1)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

Metals												
Sample ID	**Date**	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Selenium**	**Silver**	**Sodium**
NJDEP GWQS		**3**	**6,000**	**4**	**70**	**300**	**5**	**50**	**2**	**40**	**40**	**50,000**
LN-1	1/27/2005	**6.8**	<200	<4.0	<10	**103,000**	3.6	**2,450**	<0.20	<5.0	<10	**287,000**
	4/27/2005	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/19/2005	**14.0**	<200	<4.0	<10	**104,000**	<3.0	**2,260**	<0.20	<5.0	<10	**221,000**
	10/10/2005	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	4/27/2006	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/20/2006	**11.0**	<200	**4**	<10	**89,000**	**5.5**	**1,850**	<0.20	<10	<10	**210,000**
	10/20/2006	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	1/23/2007	**8.9**	368	**13.6**	<10	**296,000**	**6.9**	**9,100**	<0.20	<10	<10	**2,070,000**
	4/17/2007	NS	NS	NS	<10	NS	11.2	NS	NS	NS	NS	NS
	7/27/2007	**<8**	<200	<4.0	<10	**145,000**	<3.0	**4,830**	<0.20	<10	<10	**2,160,000**
	10/29/2007	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	1/10/2008	**<8**	<200	<4.0	<10	**106,000**	<3.0	**2,690**	<0.20	<10	<10	**740,000**
	4/14/2008	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/21/2008	**13.7**	<200	<4.0	<10	**150,000**	<3.0	**2,090**	<0.20	23.5	<10	**566,000**
	10/27/2008	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	1/21/2009	<3.0	<200	<3.0	<10	**98,800**	<3.0	**1,880**	<0.20	<10	<10	**416,000**
	4/28/2009	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/28/2009	**7.4**	<200	<4.0	<10	**59,400**	4.9	**1,200**	<0.20	<10	<10	**331,000**
	10/26/2009	<3.0	<200	<3.0	<10	**59,500**	<3.0	**2,140**	<0.20	<10	<10	**406,000**
	1/27/2010	<3.0	<200	<3.0	<10	**44,200**	<3.0	**1,810**	<0.20	<10	<10	**384,000**
	4/5/2010	<3.0	<200	<3.0	<10	**61,800**	<3.0	**1,680**	<0.20	<10	<10	**358,000**
	7/21/2010	**3.6**	<200	<3.0	<10	**46,400**	<3.0	**1,440**	<0.20	<10	<10	**333,000**
	10/26/2010	<3.0	<200	<3.0	<10	**3,770**	<3.0	**1,320**	<0.20	<10	<10	**289,000**
	1/19/2011	<3.0	<200	<3.0	<10	**34,700**	<3.0	**1,670**	<0.20	<10	<10	**274,000**
	4/20/2011	<3.0	<200	<3.0	<10	**36,400**	<3.0	**1,530**	<0.20	<10	<10	**264,000**
	7/21/2011	**6.1**	<200	<3.0	<10	**105,000**	4.4	**1,380**	<0.20	<10	<10	**197,000**
	10/20/2011	**4.5**	<200	<3.0	<10	**35,100**	<3.0	**1,110**	<0.20	<10	<10	**237,000**
	1/18/2012	<3.0	<200	<3.0	<10	**44,500**	<3.0	**1,330**	<0.20	<10	<10	**272,000**
	4/24/2012	<3.0	<200	<3.0	<10	**31,000**	<3.0	**1,520**	<0.20	<10	<10	**271,000**

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Table 5
Groundwater Sampling Summary Table - Metals
North Landfarm (Area of Concern #1)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

		Metals										
Sample ID	**Date**	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Selenium**	**Silver**	**Sodium**
NJDEP GWQS		**3**	**6,000**	**4**	**70**	**300**	**5**	**50**	**2**	**40**	**40**	**50,000**
LN-2	1/27/2005	**13.4**	<200	<4.0	<10	**64,400**	<3.0	**312**	<0.20	<5.0	<10	**83,500**
	4/27/2005	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/19/2005	**<5.0**	<200	<4.0	<10	**21,600**	<3.0	**267**	<0.20	<5.0	<10	**102,000**
	10/10/2005	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	4/27/2006	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/20/2006	**<8.0**	<200	<4.0	<10	**26,600**	3.8	**252**	<0.20	<10	<10	**81,500**
	10/20/2006	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	1/23/2007	**<8.0**	<200	<4.0	<10	**33,500**	<3.0	**342**	<0.20	<10	<10	**99,000**
	4/17/2007	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/27/2007	**<8.0**	<200	<4.0	<10	**19,100**	<3.0	**208**	<0.20	<10	<10	**85,200**
	10/29/2007	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	1/10/2008	**<8.0**	<200	<4.0	<10	**37,200**	<3.0	**201**	<0.40	<10	<10	**62,200**
	4/14/2008	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/21/2008	**10.1**	<200	<4.0	<10	**44,900**	<3.0	**297**	<0.20	<10	<10	**110,000**
	10/27/2008	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	1/21/2009	<3.0	<200	<3.0	<10	**23,200**	<3.0	**150**	<0.20	<10	<10	36,100
	4/28/2009	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/28/2009	**3.7**	<200	<4.0	<10	**23,200**	<3.0	**227**	<0.20	<10	<10	**75,900**
	10/26/2009	<3.0	<200	<3.0	<10	**23,700**	<3.0	**349**	<0.20	<10	<10	**129,000**
	1/27/2010	**8.6**	<200	<3.0	<10	**50,700**	<3.0	**283**	<0.20	<10	<10	**86,300**
	4/5/2010	<3.0	<200	<3.0	<10	**16,500**	<3.0	**209**	<0.20	<10	<10	**73,900**
	7/21/2010	<3.0	<200	<3.0	<10	**24,300**	<3.0	**331**	<0.20	<10	<10	**136,000**
	10/26/2010	<3.0	<200	<3.0	<10	**19,000**	<3.0	**251**	<0.20	<10	<10	**115,000**
	1/19/2011	<3.0	<200	<3.0	<10	**27,000**	<3.0	**363**	<0.20	<10	<10	**98,900**
	4/20/2011	<3.0	<200	<3.0	<10	**23,300**	<3.0	**256**	<0.20	<10	<10	**71,200**
	7/21/2011	**9.1**	<200	<3.0	<10	**36,200**	<3.0	**148**	<0.20	<10	<10	42,500
	10/20/2011	<3.0	<200	<3.0	<10	**17,300**	<3.0	**276**	<0.20	<10	<10	**94,700**
	1/18/2012	<3.0	<200	<3.0	<10	**19,700**	<3.0	**309**	<0.20	<10	<10	**81,600**
	4/24/2012	**10.5**	<200	<3.0	<10	**82,800**	<3.0	**409**	<0.20	17.4	<10	**64,200**

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Table 5
Groundwater Sampling Summary Table - Metals
North Landfarm (Area of Concern #1)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

		Metals										
Sample ID	**Date**	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Selenium**	**Silver**	**Sodium**
NJDEP GWQS		**3**	**6,000**	**4**	**70**	**300**	**5**	**50**	**2**	**40**	**40**	**50,000**
LN-3	1/27/2005	**8.4**	<200	<4.0	<10	**84,700**	<3.0	**1,220**	<0.20	<5.0	<10	**168,000**
	4/27/2005	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/19/2005	**<5.0**	<200	<4.0	<4.0	**71,000**	<3.0	**555**	<0.20	<5	<10	**226,000**
	10/10/2005	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	4/27/2006	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/20/2006	**<8.0**	<200	<4.0	<10	**50,900**	<3.0	**675**	<0.20	<10	<10	**175,000**
	10/20/2006	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	1/23/2007	**<8.0**	<200	<4.0	<10	**65,400**	<3.0	**1,050**	<0.20	<10	<10	**144,000**
	4/17/2007	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/27/2007	**<8.0**	<200	<4.0	<10	**52,500**	<3.0	**807**	<0.20	<10	<10	**174,000**
	10/29/2007	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	1/10/2008	**<8.0**	<200	<4.0	<10	**64,500**	<3.0	**1,150**	<0.20	<10	<10	**157,000**
	4/14/2008	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/21/2008	**16.1**	<200	<4.0	<10	**107,000**	<3.0	**645**	<0.20	12.8	<10	**223,000**
	10/27/2008	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	1/21/2009	**4.6**	<200	<3.0	<10	**49,300**	<3.0	**1,300**	<0.20	<10	<10	**150,000**
	4/28/2009	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/28/2009	**10.8**	<200	<4.0	<10	**56,700**	<3.0	**971**	<0.20	<10	<10	**247,000**
	10/26/2009	**5.7**	<200	<3.0	<10	**47,800**	<3.0	**845**	<0.20	<10	<10	**245,000**
	1/27/2010	**6.4**	<200	<3.0	<10	**41,400**	<3.0	**674**	<0.20	<10	<10	**222,000**
	4/5/2010	**4.8**	<200	<3.0	<10	**61,600**	<3.0	**1,070**	<0.20	<10	<10	**321,000**
	7/21/2010	**28.0**	<200	<3.0	<10	**75,500**	<3.0	**489**	<0.20	<10	<10	**282,000**
	10/26/2010	**15.0**	<200	<3.0	<10	**43,700**	<3.0	**505**	<0.20	<10	<10	**275,000**
	1/19/2011	**23.0**	<200	<3.0	<10	**99,400**	<3.0	**356**	<0.20	<10	<10	**166,000**
	4/20/2011	**5.8**	<200	<3.0	<10	**96,100**	<3.0	**1,380**	<0.20	<10	<10	**427,000**
	7/21/2011	**17.2**	<200	<3.0	<10	**52,800**	<3.0	**616**	<0.20	<10	<10	**230,000**
	10/20/2011	**13.8**	<200	<3.0	<10	**36,000**	<3.0	**639**	<0.20	<10	<10	**205,000**
	1/18/2012	**48.5**	<200	3.1	<10	**128,000**	<3.0	**532**	<0.40	<10	<10	**149,000**
	4/24/2012	**11.7**	<200	<3.0	<10	**87,500**	<3.0	**1,390**	<0.20	16.2	<10	**714,000**

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Table 5
Groundwater Sampling Summary Table - Metals
North Landfarm (Area of Concern #1)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

		Metals										
Sample ID	**Date**	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Selenium**	**Silver**	**Sodium**
NJDEP GWQS		**3**	**6,000**	**4**	**70**	**300**	**5**	**50**	**2**	**40**	**40**	**50,000**
LN-4	1/27/2005	**28.8**	<200	<4.0	<10	**105,000**	**6.3**	**702**	<0.20	<5.0	<10	**134,000**
	4/27/2005	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/19/2005	**11.0**	<200	<4.0	<10	**27,300**	<3.0	**445**	<0.20	<5.0	<10	**84,100**
	10/10/2005	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	4/27/2006	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/20/2006	**14.9**	<200	<4.0	<10	**46,300**	<3.0	**555**	<0.20	<10	<10	**119,000**
	10/20/2006	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	1/23/2007	**15.1**	<200	<4.0	<10	**43,800**	<3.0	**513**	<0.20	<10	<10	**138,000**
	4/17/2007	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/27/2007	**14.4**	<200	<4.0	<10	**26,200**	**<15**	**346**	<0.20	<10	<10	**469,000**
	10/29/2007	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	1/10/2008	**10.5**	<200	<4.0	<10	**34,700**	<3.0	**468**	<0.20	<10	<10	**90,900**
	4/14/2008	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/21/2008	**15.1**	<200	<4.0	<10	**37,300**	<3.0	**575**	<0.20	<10	<10	**97,900**
	10/27/2008	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	1/21/2009	**6.7**	<200	<3.0	<10	**19,800**	<3.0	**513**	<0.20	<10	<10	**117,000**
	4/28/2009	NS	NS	NS	<10	NS	<3.0	NS	NS	NS	NS	NS
	7/28/2009	**13.4**	<200	<4.0	<10	**24,400**	<3.0	**357**	<0.20	<10	<10	**70,800**
	10/26/2009	**10.7**	<200	<3.0	<10	**25,400**	<3.0	**435**	<0.20	<10	<10	**163,000**
	1/27/2010	**10.8**	<200	<3.0	<10	**24,900**	<3.0	**420**	<0.20	<10	<10	**181,000**
	4/5/2010	**6.8**	<200	<3.0	<10	**20,200**	<3.0	**306**	<0.20	<10	<10	**121,000**
	7/21/2010	**16.9**	<200	<3.0	**173**	**34,600**	<3.0	**393**	<0.20	<10	<10	**137,000**
	10/26/2010	**11.8**	<200	<3.0	<10	**21,400**	<3.0	**353**	<0.20	<10	<10	**153,000**
	1/19/2011	**5.3**	<200	<3.0	<10	**20,000**	<3.0	**373**	<0.20	<10	<10	**120,000**
	4/20/2011	**10.7**	<200	<3.0	<10	**23,300**	<3.0	**327**	<0.20	<10	<10	**119,000**
	7/21/2011	**13.4**	<200	<3.0	<10	**21,400**	<3.0	**318**	<0.20	<10	<10	**107,000**
	10/20/2011	**24.2**	<200	<3.0	<10	**40,700**	<3.0	**483**	<0.20	<10	<10	**139,000**
	1/18/2012	**10.0**	<200	<3.0	<10	**17,300**	<3.0	**233**	<0.20	<10	<10	**107,000**
	4/24/2012	**10.9**	<200	<3.0	<10	**29,100**	<3.0	**532**	<0.20	<10	<10	**94,700**

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Table 5
Groundwater Sampling Summary Table - Metals
North Landfarm (Area of Concern #1)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, Middlesex County, New Jersey

		Metals										
Sample ID	**Date**	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Selenium**	**Silver**	**Sodium**
NJDEP GWQS		**3**	**6,000**	**4**	**70**	**300**	**5**	**50**	**2**	**40**	**40**	**50,000**
LN-5	10/26/2010	<3.0	<200	<3.0	<10	**2,410**	**6.9**	45.2	<0.20	<10	<10	10,300
	1/19/2011	t locate due to snow.										
	4/20/2011	<3.0	<200	<3.0	<10	**3,440**	**6.6**	**95.9**	<0.20	<10	<10	<10,000
	7/21/2011	<3.0	<200	<3.0	<10	**2,660**	**7.2**	41.8	<0.20	<10	<10	13,000
	10/20/2011	**5.1**	<200	<3.0	<10	**7,160**	**14.1**	46.6	<0.20	<10	<10	<10,000
	1/18/2012	**6.6**	<200	<3.0	12.6	**12,300**	**23.2**	**64.6**	0.26	<10	<10	<10,000
	4/24/2012	<3.0	<200	<3.0	<10	**601**	<3.0	20.1	<0.20	<10	<10	<10,000
LN-6	10/26/2010	**35.8**	<200	<3.0	36.1	**73,700**	**58.5**	**1,150**	0.77	<10	<10	**146,000**
	1/19/2011	**9.0**	<200	<3.0	<10	**47,300**	<3.0	**949**	<0.20	<10	<10	**143,000**
	4/20/2011	**3.0**	<200	<3.0	<10	**32,400**	<3.0	**1,060**	<0.20	<10	<10	**167,000**
	7/21/2011	**9.2**	<200	<3.0	<10	**48,000**	<3.0	**1,120**	<0.20	<10	<10	**144,000**
	10/20/2011	**9.3**	<200	<3.0	<10	**43,600**	<3.0	**1,300**	<0.20	<10	<10	**159,000**
	1/18/2012	**25.2**	<200	<3.0	<10	**87,800**	<3.0	**436**	<0.20	<10	<10	**71,500**
	4/24/2012	**12.9**	<200	<3.0	<10	**48,400**	<3.0	**545**	<0.20	11.2	<10	**85.800**
LN-7	10/26/2010	**9.6**	<200	<3.0	<10	**14,900**	4	**788**	<0.20	<10	<10	**196,000**
	1/19/2011	**7.9**	<200	<3.0	<10	**23,100**	<3.0	**1,050**	<0.20	<10	<10	**209,000**
	4/20/2011	**9.3**	<200	<3.0	<10	**23,400**	<3.0	**1,100**	<0.20	<10	<10	**135,000**
	7/21/2011	**9.5**	<200	<3.0	<10	**20,800**	<3.0	**1,220**	<0.20	<10	<10	**198,000**
	10/20/2011	**11.0**	<200	<3.0	<10	**12,900**	<3.0	**729**	<0.20	<10	<10	**211,000**
	1/18/2012	**5.0**	<200	<3.0	<10	**13,500**	<3.0	**791**	<0.20	<10	<10	**205,000**
	4/24/2012	**8.1**	<200	<3.0	<10	**39,600**	<3.0	**1,170**	<0.20	<10	<10	22,400

All data is reported in ug/kg unless otherwise noted
ND- Not Detected
NA- Not Analyzed/ Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value

Table 6
Groundwater Sampling Summary Table - General Chemistry
North Landfarm (Area of Concern #1)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

General Chemistry

Sample ID	Date	Nitrogen, Ammonia (mg/L)	Nitrogen, Nitrate (mg/L)	Nitrogen, Nitrite (mg/L)	Nitrogen, Nitrate + Nitrite (mg/L)	Phenols (mg/L)	Total Organic Carbon (mg/L)	Fluoride (mg/L)	Total Organic Halides (mg/L)	Solids, Total Dissolved (mg/L)	Coliform, Total (col/100mL)	Chloride (mg/L)	Sulfate (mg/L)	Specific Conductivity (uS/cm)	pH
NJDEP GWQS		**3**	**10**	**1**	**10**	**2**	**NA**	**2**	**NA**	**500**	**NA**	**250**	**250**	**NA**	**6.5 - 8.5**
LN-1	1/27/2005	**4.0**	<0.11	<0.010	<0.10	<0.20	7.0	0.83	<0.20	**1,410**	<2	**509**	**379**	97.2	**6.23**
	4/27/2005	NS	NS	NS	NS	NS	9.1	NS	<0.20	NS	NS	NS	NS	1,490	6.87
	7/19/2005	**4.1**	0.13	<0.010	0.13	<0.20	6.8	0.81	<0.20	**1,080**	NA	**368**	**292**	1,500	**6.42**
	10/10/2005	NS	NS	NS	NS	NS	5.6	NS	<0.20	NS	NS	NS	NS	1,310	**6.36**
	4/27/2006	NS	NS	NS	NS	NS	7.1	NS	<0.20	NS	NS	NS	NS	1,910	6.72
	7/20/2006	**3.8**	<0.11	<0.010	<0.10	<0.20	9.0	1.1	<0.10	**979**	<5	**292**	245	1,850	**6.22**
	10/20/2006	NS	NS	NS	NS	NS	8.1	NS	<0.050	NS	NS	NS	NS	1,640	7.35
	1/23/2007	**7.7**	<0.11	<0.010	<0.10	<0.20	13.6	0.48	0.35	**6,000**	<5	**5,170**	**1080**	11,000	**6.2**
	4/17/2007	NS	NS	NS	NS	NS	10.1	NS	<0.10	NS	NS	NS	NS	16,800	7.0
	7/27/2007	**6.1**	<0.15	<0.050	<0.10	<0.20	10.3	0.77	<0.10	**6,250**	<2	**3,750**	**608**	11,300	**6.23**
	10/29/2007	NS	NS	NS	NS	NS	10.5	NS	<0.050	NS	NS	NS	NS	6,500	**6.31**
	1/10/2008	**3.6**	<0.11	<0.010	<0.10	<0.20	7.9	0.83	<0.10	**2,550**	<2	**1,390**	**283**	505	**6.48**
	4/14/2008	NS	NS	NS	NS	NS	8.9	NS	<0.10	NS	NS	NS	NS	2,910	6.65
	7/21/2008	**4.9**	<0.11	<0.010	<0.10	<0.20	9.4	1.2	<0.050	**1,900**	<5	**925**	188	3,630	6.56
	10/27/2008	NS	NS	NS	NS	NS	8.1	NS	<0.050	NS	NS	NS	NS	3,030	6.58
	1/21/2009	**5.1**	<0.11	<0.010	<0.10	<0.20	7.9	0.88	<0.050	**1,610**	<4	**840**	136	2,900	6.6
	4/28/2009	NS	NS	NS	NS	NS	6.6	NS	<0.050	NS	NS	NS	NS	2,940	**6.38**
	7/28/2009	**4.3**	<0.11	<0.010	<0.10	<0.20	6.4	1.7	<0.050	**1,030**	<4	**602**	132	2,370	**6.38**
	10/26/2009	**5.4**	<0.11	<0.010	<0.10	<0.20	9.8	1.2	<0.10	**1,510**	12	**779**	100	2,990	**6.37**
	1/27/2010	**5.0**	<0.11	<0.010	<0.10	<0.20	8.6	0.88	<0.10	**1,380**	<4	**655**	60	728	7.33
	4/5/2010	**5.9**	0.17	<0.010	0.17	<0.20	9.5	1.0	<0.10	**1,390**	<5	**591**	80	0.402	7.09
	7/21/2010	**4.7**	<0.11	<0.010	<0.10	<0.20	16.0	1.4	<0.10	**1,170**	<4	**492**	77.8	1.84	**6.42**
	10/26/2010	**4.5**	<0.11	<0.010	<0.10	<0.20	12.5	1.6	<0.050	**1,090**	<4	**435**	53.2	2.06	**6.31**
	1/19/2011	**4.4**	<0.11	<0.010	<0.10	<0.20	9.2	1.1	<0.050	**1,020**	<4	**416**	37.5	2.18	6.66
	4/20/2011	**3.6**	<0.11	<0.010	<0.10	<0.20	9.7	1.1	<0.050	**1,040**	<4	**389**	51.6	1.95	6.96
	7/21/2011	**5.3**	<0.11	<0.010	<0.10	<0.20	9.9	<0.20	<0.060	**754**	2	2.5	<10	1.58	7.00
	10/20/2011	**5.0**	<0.11	<0.010	<0.10	<0.20	8.1	1.4	<0.20	**913**	400	**381**	22.5	1.76	**6.09**
	1/18/2012	**3.5**	<0.11	<0.010	<0.10	<0.20	10.4	1.1	<0.20	**998**	<4	**364**	28.4	1.71	7.18
	4/24/2012	**4.8**	<0.11	<0.010	<0.10	<0.20	8.1	1.1	<0.20	**998**	<4	**380**	33.4	1.98	6.78
LN-2	7/20/2006	1.6	<0.11	<0.010	<0.10	<0.20	4.4	0.48	<0.050	264	<5	68.9	4.9	806	6.83
	10/20/2006	NS	NS	NS	NS	NS	3.9	NS	<0.050	NS	NS	NS	NS	593	7.18
	1/23/2007	1.9	<0.11	<0.010	<0.10	<0.20	3.6	1.2	0.21	441	<5	156	21.8	811	6.99
	4/17/2007	NS	NS	NS	NS	NS	2.7	NS	<0.050	NS	NS	NS	NS	410	7.66
	7/27/2007	2.7	<0.11	<0.10	<0.10	<0.20	4.5	0.84	<0.050	441	<4	159	<10	1,090	**6.47**
	10/29/2007	NS	NS	NS	NS	NS	4.2	NS	<0.10	NS	NS	NS	NS	7,990	6.54
	1/10/2008	1.5	<0.11	0.01	<0.10	<0.20	3.6	1.0	<0.050	411	<4	144	<10	723	6.84
	4/14/2008	NS	NS	NS	NS	NS	2.2	NS	<0.050	NS	NS	NS	NS	277	6.68
	7/21/2008	2.3	<0.11	<0.010	<0.10	<0.20	4.1	1.0	<0.050	469	TNTC	166	<20	842	6.71
	10/27/2008	NS	NS	NS	NS	NS	5.6	NS	<0.050	NS	NS	NS	NS	560	6.87
	1/21/2009	1.3	<0.11	<0.010	<0.10	<0.20	3.1	1.0	<0.050	284	<4	103	10.2	353	7.02
	4/28/2009	NS	NS	NS	NS	NS	2.4	NS	<0.050	NS	NS	NS	NS	1,010	**6.39**
	7/28/2009	1.2	<0.11	<0.010	<0.10	<0.20	3.3	0.63	<0.050	240	<4	95.4	<10	874	6.68
	10/26/2009	2.7	<0.11	<0.010	<0.10	<0.20	4.8	1.3	<0.050	469	<4	158	11.3	9,290	8.23
	1/27/2010	1.9	<0.11	<0.010	<0.10	<0.20	4.4	1.2	<0.10	317	<4	110	<10	728	7.26
	4/5/2010	1.5	<0.11	<0.010	<0.10	<0.20	3.3	1.3	<0.050	288	500	79.2	11.3	0.558	**6.42**
	7/21/2010	2.8	<0.11	<0.010	<0.10	<0.20	4.4	1.4	<0.050	**507**	4	178	10.2	0.358	6.9
	10/26/2010	2.5	<0.11	<0.010	<0.10	<0.20	4.4	1.4	<0.050	422	<5	130	12.3	0.911	6.55
	1/19/2011	2.1	<0.11	<0.010	<0.10	<0.20	3.5	1.1	<0.050	400	<4	134	<10	0.802	6.81
	4/20/2011	1.6	<0.11	<0.010	<0.10	<0.20	3.2	1.2	<0.050	327	16	105	<10	0.55	7.00
	7/21/2011	1.0	<0.11	<0.010	<0.10	<0.20	2.8	0.45	<0.050	199	28	47.6	<10	0.843	7.13
	10/20/2011	2.5	<0.11	<0.010	<0.10	<0.20	3.3	1.1	<0.20	379	16	119	11.8	0.842	7.12
	1/18/2012	1.2	<0.11	<0.010	<0.10	<0.20	3.5	0.99	<0.050	299	20	104	<10	0.664	7.00
	4/24/2012	2.1	<0.11	<0.010	<0.10	<0.20	3.8	0.48	<0.20	356	<4	134	<10	0.705	7.05

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Table 6
Groundwater Sampling Summary Table - General Chemistry
North Landfarm (Area of Concern #1)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

		General Chemistry													
Sample ID	**Date**	**Nitrogen, Ammonia (mg/L)**	**Nitrogen, Nitrate (mg/L)**	**Nitrogen, Nitrite (mg/L)**	**Nitrogen, Nitrate + Nitrite (mg/L)**	**Phenols (mg/L)**	**Total Organic Carbon (mg/L)**	**Fluoride (mg/L)**	**Total Organic Halides (mg/L)**	**Solids, Total Dissolved (mg/L)**	**Coliform, Total (col/100mL)**	**Chloride (mg/L)**	**Sulfate (mg/L)**	**Specific Conductivity (uS/cm)**	**pH**
NJDEP GWQS		**3**	**10**	**1**	**10**	**2**	**NA**	**2**	**NA**	**500**	**NA**	**250**	**250**	**NA**	**6.5 - 8.5**
LN-3	1/27/2005	1.9	<0.11	<0.010	<0.10	<0.20	23.7	0.81	0.22	**628**	<2	**291**	3.1	1,240	6.54
	4/27/2005	NS	NS	NS	NS	NS	14.7	NS	0.27	NS	NS	NS	NS	1,550	6.76
	7/19/2005	**3.8**	0.13	<0.010	0.13	<0.20	42.0	0.57	<0.050	**854**	NA	**382**	<20	1,200	6.59
	10/10/2005	NS	NS	NS	NS	NS	11.3	NS	<0.20	NS	NS	NS	NS	1,250	6.66
	4/27/2006	NS	NS	NS	NS	NS	13.2	NS	<0.20	NS	NS	NS	NS	38	6.78
	7/20/2006	**3.8**	<0.11	<0.010	<0.10	<0.20	12.2	0.71	<0.10	**710**	<5	245	2	1,160	6.65
	10/20/2006	NS	NS	NS	NS	NS	13.8	NS	<0.050	NS	NS	NS	NS	1,260	6.57
	1/23/2007	**3.9**	<0.11	<0.010	<0.10	<0.20	16.2	0.84	<0.20	**571**	<5	170	<10	988	**6.46**
	4/17/2007	NS	NS	NS	NS	NS	14.2	NS	<0.10	NS	NS	NS	NS	1,190	**6.27**
	7/27/2007	**4.2**	<0.11	<0.010	<0.10	<0.20	16.0	0.84	<0.10	**666**	NA	249	<10	1,150	**5.98**
	10/29/2007	NS	NS	NS	NS	NS	15.8	NS	<0.050	NS	NS	NS	NS	14,700	**6.39**
	1/10/2008	**3.3**	0.13	0.025	0.15	<0.20	16.4	0.77	<0.050	**606**	<4	208	<10	1,240	6.57
	4/14/2008	NS	NS	NS	NS	NS	16.4	NS	<0.050	NS	NS	NS	NS	1,750	6.71
	7/21/2008	**3.4**	<0.11	<0.010	<0.10	<0.20	12.0	0.8	<0.050	**772**	TNTC	**341**	<20	1,630	6.68
	10/27/2008	NS	NS	NS	NS	NS	11.3	NS	<0.050	NS	NS	NS	NS	1,160	6.73
	1/21/2009	**3.9**	<0.20	<0.10	<0.10	<0.20	15.1	0.62	0.01	**618**	<4	**261**	<10	1,230	6.73
	4/28/2009	NS	NS	NS	NS	NS	12.8	NS	<0.10	NS	NS	NS	NS	3,280	**6.34**
	7/28/2009	**3.6**	<0.11	<0.010	<0.10	<0.20	20.6	0.68	<0.050	**935**	<4	**517**	<10	1,620	6.59
	10/26/2009	**3.9**	<0.11	<0.010	<0.10	<0.20	16.3	0.77	<0.20	**893**	<4	**391**	<10	1,780	**6.26**
	1/27/2010	2.9	<0.11	<0.010	<0.10	<0.20	9.7	0.54	<0.10	**798**	<4	**385**	<10	189	7.9
	4/5/2010	**3.5**	0.25	<0.010	0.25	<0.20	13.1	0.48	<0.050	**1,530**	35	**876**	<10	2.71	**6.14**
	7/21/2010	**3.1**	<0.11	<0.010	<0.10	<0.20	13.7	0.72	<0.10	**964**	<4	**445**	<10	2.04	6.71
	10/26/2010	**3.4**	<0.11	<0.010	<0.10	<0.20	14.0	0.66	<0.10	**977**	40	**319**	<10	1.78	7.05
	1/19/2011	2.6	0.13	<0.010	0.13	<0.20	9.1	0.54	<0.20	**623**	<4	216	<10	1.32	7.00
	4/20/2011	**3.2**	<0.11	<0.010	<0.10	<0.20	8.1	0.43	<0.10	**2,120**	8	**1,090**	<10	4.09	7.04
	7/21/2011	**3.3**	<0.11	<0.010	<0.10	<0.20	15.2	0.60	<0.060	**869**	70	**395**	<10	2.09	6.72
	10/20/2011	**3.0**	<0.11	<0.010	<0.10	<0.20	9.9	0.65	0.33[a]	**739**	48	234	<10	1.35	7.28
	1/18/2012	1.2	<0.11	<0.010	<0.10	<0.20	13.2	0.56	<0.10	**557**	28	191	<10	1.23	7.90
	4/24/2012	2.9	<0.11	<0.010	<0.10	<0.20	4.3	0.28	<0.050	**3,450**	<4	**1,720**	18.3	6.06	6.60

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Table 6
Groundwater Sampling Summary Table - General Chemistry
North Landfarm (Area of Concern #1)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

		General Chemistry													
Sample ID	**Date**	**Nitrogen, Ammonia (mg/L)**	**Nitrogen, Nitrate (mg/L)**	**Nitrogen, Nitrite (mg/L)**	**Nitrogen, Nitrate + Nitrite (mg/L)**	**Phenols (mg/L)**	**Total Organic Carbon (mg/L)**	**Fluoride (mg/L)**	**Total Organic Halides (mg/L)**	**Solids, Total Dissolved (mg/L)**	**Coliform, Total (col/100mL)**	**Chloride (mg/L)**	**Sulfate (mg/L)**	**Specific Conductivity (uS/cm)**	**pH**
NJDEP GWQS		**3**	**10**	**1**	**10**	**2**	**NA**	**2**	**NA**	**500**	**NA**	**250**	**250**	**NA**	**6.5 - 8.5**
LN-4	1/27/2005	1.7	<0.11	<0.010	<0.10	<0.20	<10	1.6	<0.20	**586**	<2	**256**	3.9	909	7.16
	4/27/2005	NS	NS	NS	NS	NS	9.0	NS	0.29	NS	NS	NS	NS	931	7.25
	7/19/2005	2.1	<0.11	<0.010	<0.10	<0.20	5.9	1.3	<0.050	400	NA	165	<20	700	6.9
	10/10/2005	NS	NS	NS	NS	NS	4.7	NS	<0.20	NS	NS	NS	NS	799	7.01
	4/27/2006	NS	NS	NS	NS	NS	7.4	NS	<0.20	NS	NS	NS	NS	753	7.11
	7/20/2006	2.3	<0.11	<0.010	<0.10	<0.20	5.5	1.2	<0.050	**513**	<5	206	<2.0	1,210	6.73
	10/20/2006	NS	NS	NS	NS	NS	6.9	NS	<0.10	NS	NS	NS	NS	878	6.68
	1/23/2007	2.2	<0.11	<0.010	<0.10	<0.20	6.9	1.4	<0.20	469	<5	184	<10	810	6.88
	4/17/2007	NS	NS	NS	NS	NS	6.2	NS	<0.050	NS	NS	NS	NS	723	6.7
	7/27/2007	1.8	<0.11	<0.010	<0.10	<0.20	6.1	1.5	<0.10	420	<4	147	<10	869	6.7
	10/29/2007	NS	NS	NS	NS	NS	7.3	NS	<0.050	NS	NS	NS	NS	6,860	6.6
	1/10/2008	1.9	<0.11	<0.010	<0.10	<0.20	5.0	1.3	<0.050	407	<4	173	<10	850	6.98
	4/14/2008	NS	NS	NS	NS	NS	4.8	NS	<0.050	NS	NS	NS	NS	369	7.17
	7/21/2008	1.8	<0.11	<0.010	<0.10	<0.20	3.9	1.3	<0.050	457	TNTC	196	<20	951	7.02
	10/27/2008	NS	NS	NS	NS	NS	4.4	NS	<0.050	NS	NS	NS	NS	793	7.06
	1/21/2009	1.8	<0.15	<0.050	<0.10	<0.20	4.5	1.2	<0.20	421	<4	213	<10	999	7.11
	4/28/2009	NS	NS	NS	NS	NS	4.4	NS	<0.050	NS	NS	NS	NS	485	6.82
	7/28/2009	1.7	<0.11	<0.010	<0.10	<0.20	4.9	1.5	<0.050	228	<4	76.4	<10	518	6.76
	10/26/2009	2.9	<0.11	<0.010	<0.10	<0.20	5.0	1.4	<0.10	**595**	<4	**269**	<10	127	7.5
	1/27/2010	2.7	<0.11	<0.010	<0.10	<0.20	4.1	1.4	<0.10	**641**	<4	**291**	<10	147	8.08
	4/5/2010	1.8	0.12	<0.010	0.12	<0.20	4.4	1.5	<0.050	451	95	189	<10	0.519	6.89
	7/21/2010	1.9	<0.11	<0.010	<0.10	<0.20	5.9	1.6	<0.050	488	<4	192	<10	0.875	7.14
	10/26/2010	2.4	<0.11	<0.010	<0.10	<0.20	4.7	1.5	<0.050	**589**	100	238	<10	1.12	7.47
	1/19/2011	2.1	<0.11	<0.010	<0.10	<0.20	4.4	1.4	<0.050	418	<4	143	<10	0.992	7.49
	4/20/2011	1.9	<0.11	<0.010	<0.10	<0.20	5.8	1.6	<0.20	474	24	139	<10	0.864	7.53
	7/21/2011	2.3	<0.11	<0.010	<0.10	<0.20	4.4	1.4	<0.050	433	<2	148	<10	0.918	7.32
	10/20/2011	2.7	<0.11	<0.010	<0.10	<0.20	<0.20	1.4	<0.20	**544**	4,300	201	<10	1.04	**6.23**
	1/18/2012	1.8	<0.11	<0.010	<0.10	<0.20	4.0	<0.20	<0.050	327	76	140	<10	0.764	7.50
	4/24/2012	2.0	<0.11	<0.010	<0.10	<0.20	4.1	1.2	<0.050	418	<4	144	<10	0.817	7.05

ND- Not Detected
NA- Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value

Table 6
Groundwater Sampling Summary Table - General Chemistry
North Landfarm (Area of Concern #1)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

		General Chemistry													
Sample ID	**Date**	**Nitrogen, Ammonia (mg/L)**	**Nitrogen, Nitrate (mg/L)**	**Nitrogen, Nitrite (mg/L)**	**Nitrogen, Nitrate + Nitrite (mg/L)**	**Phenols (mg/L)**	**Total Organic Carbon (mg/L)**	**Fluoride (mg/L)**	**Total Organic Halides (mg/L)**	**Solids, Total Dissolved (mg/L)**	**Coliform, Total (col/100mL)**	**Chloride (mg/L)**	**Sulfate (mg/L)**	**Specific Conductivity (uS/cm)**	**pH**
NJDEP GWQS		**3**	**10**	**1**	**10**	**2**	**NA**	**2**	**NA**	**500**	**NA**	**250**	**250**	**NA**	**6.5 - 8.5**
LN-5	10/26/2010	<0.20	2.7	<0.010	2.7	<0.20	2.4	<0.20	<0.050	103	40	7.3	34.4	0.136	7.02
	1/19/2011	Could not locate due to snow.													
	4/20/2011	<0.21	0.70	<0.010	0.70	<0.20	1.3	<0.20	<0.050	116	<2	12.8	33.1	0.139	**4.87**
	7/21/2011	<0.20	0.90	<0.010	0.90	<0.20	2.4	<0.20	<0.050	128	<4	18.6	33.0	0.177	**4.50**
	10/20/2011	<0.20	1.1	<0.010	1.1	<0.20	2.7	<0.20	<0.20	65.0	16	2.6	25.8	0.118	6.70
	1/18/2012	<0.20	0.91	<0.010	0.91	<0.20	1.6	<0.20	<0.050	<10	8	2.6	20.6	0.069	7.19
	4/24/2012	<0.20	1.2	<0.010	1.2	<0.20	1.0	<0.20	>0.050	72.0	<4	6.1	24.1	0.14	**6.19**
LN-6	10/26/2010	2.9	<0.11	<0.010	<0.10	<0.20	12.2	1.3	<0.10	**692**	24	247	82.2	1.36	7.12
	1/19/2011	2.5	<0.11	<0.010	<0.10	<0.20	7.2	0.86	<0.10	**643**	<4	245	71	1.44	7.85
	4/20/2011	<0.20	<0.11	<0.010	<0.10	<0.20	5.0	0.74	<0.050	**704**	12	**268**	55.6	1.30	6.69
	7/21/2011	**3.8**	<0.11	<0.010	<0.10	<0.20	7.3	1.3	<0.050	**670**	<2	191	92.0	1.31	**6.09**
	10/20/2011	**3.1**	<0.11	<0.010	<0.10	<0.20	5.4	1.1	<0.20	**675**	72	170	54.1	1.32	7.33
	1/18/2012	1.3	<0.11	<0.010	<0.10	<0.20	9.8	0.91	<0.10	339	8	102	30.6	0.87	7.49
	4/24/2012	2.0	<0.11	<0.010	<0.10	<0.20	7.9	1.0	<0.20	438	<4	133	40.3	1.06	6.93
LN-7	10/26/2010	2.3	<0.11	<0.010	<0.10	<0.20	5.5	1.3	<0.050	**830**	<4	**343**	17.1	1.62	6.83
	1/19/2011	1.3	<0.11	<0.010	<0.10	<0.20	4.5	1.2	<0.10	**737**	<4	**253**	39.4	1.58	7.09
	4/20/2011	1.7	<0.11	<0.010	<0.10	<0.20	11.4	0.86	<0.050	**718**		231	34.5	1.35	7.29
	7/21/2011	**3.0**	<0.11	<0.010	<0.10	<0.20	10.1	1.0	<0.050	**816**	28	**308**	23.5	1.55	7.39
	10/20/2011	2.3	<0.11	<0.010	<0.10	<0.20	5.8	1.4	<0.20	**705**	88	**250**	<10	1.41	**6.15**
	1/19/2012	1.4	0.47	<0.010	0.47	<0.20	4.6	1.2	<0.050	**702**	<4	248	<10	1.23	7.57
	4/24/2012	1.6	<0.11	<0.010	<0.10	<0.20	6.4	1.1	<0.10	**577**	<4	173	25.9	0.327	**5.68**

ND- Not Detected
NA- Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value

Table 7
Soil Sampling Summary
North Landfarm
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

Sample Location	Sample Date	Specific Conductivity	Total Organic Carbon	pH	TPHC	Solids, Percent	Cadmium	Chromium	Copper	Lead	Nickel	Zinc
IGWSRS		**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
RDCSRS		**NA**	**NA**	**NA**	**NA**	**NA**	**78**	**NA**	**3,100**	**400**	**1,600**	**23,000**
NRDCSRS		**NA**	**NA**	**NA**	**NA**	**NA**	**78**	**NA**	**45,000**	**800**	**23,000**	**110,000**
NLFSOIL	4/20/2001	NS	47,200	NS	14,700	84	<0.55	318	306	290	67.2	515
	7/17/2001	NS	69,300	NS	42,300	86.3	NS	341	NS	329	NS	NS
	10/18/2001	NS	60,800	NS	23,400	83.5	NS	327	NS	318	NS	NS
	1/4/2002	751	42,000	4.72	13,800	87.7	NS	270	NS	283	NS	NS
	4/22/2002	188	44,000	5.84	5,210	82.1	<0.65	317	294	346	75.8	532
	7/18/2002	173	31,700	5.43	8,470	91.9	NS	285	NS	296	NS	NS
	10/29/2002	54.9	19,500	4.79	2,050	95.6	NS	162	NS	174	NS	NS
	1/23/2003	68.2	15,000	4.95	1,460	97.5	NS	118	NS	152	NS	NS
	4/23/2003	189	35,500	5.68	2,720	75.3	<0.67	249	213	240	69.3	416
	7/24/2003	215	42,100	6.09	3,060	80.5	NS	288	NS	279	NS	NS
	4/29/2004	71.8	46,600	5.15	6,390	80.2	<0.62	247	261	332	60.6	359
	7/30/2004	232	33,200	5.19	573	76.5	NS	291	NA	350	NS	NS
	10/22/2004	147	34,100	4.69	4,730	79.3	NS	218	NA	238	NS	NS
	4/27/2005	42.6	2,440	5.03	<28	89.2	<0.55	19.5	34.9	39.4	14.7	46.5
	7/19/2005	113	28,200	5.05	2,540	82.2	NS	293	NS	294	NS	NS
	10/10/2005	69.2	26,500	5.18	2,660	91.9	NS	210	NS	243	NS	NS
	1/19/2006	29.1	26,600	5.17	3,240	83.5	NS	235	NS	255	NS	NS
	4/28/2006	43.8	27,100	5.57	2,940	89.7	1.5	231	222	252	51.3	289
	7/20/2006	81.7	27,600	5.1	4,020	89.6	NS	249	NS	263	NS	NS
	10/20/2006	127	37,000	5.8	3,450	77.8	NS	266	NS	263	NS	NS
	1/23/2007	73.9	25,600	5.93	2,220	83.4	NS	225	NS	220	NS	NS
	4/17/2007	189	43,200	4.71	2,050	82.9	<0.59	195	190	214	61.1	257
	7/25/2007	176	28,300	5.4	3,780	89	NS	249	NS	270	NS	NS
	10/30/2007	150	29,500	4.98	2,200	87.8	NS	251	NS	267	NS	NS
	1/10/2008	73.4	25,200	5.55	650	74.2	NS	308	NS	303	NS	NS
	4/14/2008	46.6	27,800	5.56	867	86.3	1.3	221	196	239	49.6	404
	7/22/2008	217	34,300	5.07	3,060	96.9	NS	189	NS	213	NS	NS
	10/27/2008	120	27,900	5.34	778	87.6	NS	165	NS	175	NS	NS
	1/21/2009	43	17,200	5.63	461	83.3	<1.2	179	195	237	80.6	300
	4/28/2009	131	31,500	5.62	4,510	87.8	1.1	145	147	158	46.3	287
	7/28/2009	235	28,900	4.71	1,150	87.1	NS	246	NS	260	NS	NS

All Data in mg/kg unless otherwise noted.
ND - Not Detected
NA - Not Applicable
NS - Not Sampled

Table 8
Well Construction Summary
Hess Corporation - Port Reading
South Landfarm

Well #	LS-1R	LS-2	LS-3	LS-4	PL-1	PL-3R	PL-6R	PL-9R	TM-6
Well Permit	26-25324-1	26-07593-8	26-07594-6	26-07595-4	26-3776-0	26-3776-2	26-3776-5	26-3776-8	26-5262-8
Total Depth	15.88	12.02	13.10	13.05	19.94	18.65	15.29	18.65	21.20
Well Diameter (inches)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Top of Casing Elevation	14.49	11.69	10.70	11.25	11.82	12.27	11.49	11.26	17.68
Ground Elevation	12.70	9.57	11.16	8.96	IU	IU	IU	IU	IU
Depth of Well Screen	4.67	5.25	6.00	5.00	3.00	1.00	1.00	1.00	3.00

Notes:
1) Unless otherwise designated, all measurments in feet.
2) IU - Information Unknown

TABLE 9
Field Parameters
HESS CORPORATION - PORT READING, NJ
South Landfarm

Monitoring Date	January 19, 2012								
Weather conditions	Sunny, 30's								
Well ID number	LS-1R	LS-2	LS-3	LS-4	PL-1	PL-3R	PL-6R	PL-9R	TM-6
Well permit	26-25324-1	26-07593-8	26-07594-6	26-07595-4	26-3776-0	P200800555	P200800557	P200800559	26-5262-8
Ground elevation (ft)	12.70	9.57	11.16	8.96	NA	NA	NA	NA	NA
Well diameter (in)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Top of casing elevation (ft)	14.49	11.69	10.70	11.25	11.82	12.27	11.49	11.26	17.68
Time gauged	10:07	10:00	10:40	9:27	8:58	8:50	9:09	8:56	9:06
Depth to product from TOC (ft)	NP	NP	NP	NP	NP	NP	NP	NP	NP
Depth to water from TOC (ft)	2.17	3.33	1.12	2.03	3.61	2.98	2.43	1.83	5.95
Depth to bottom from TOC (ft)	15.80	12.08	12.84	13.05	19.90	21.30	15.29	18.65	19.80
Depth from TOC to TOS (ft)	4.67	5.25	6.00	5.00	4.00	4.00	4.75	3.80	4.00
Ground Water Elevation (ft)	12.32	8.36	9.58	9.22	8.21	9.29	9.06	9.43	11.73
Product/sheen on probe/bailer (Y/N)	No	No	No	No	No	No	No	No	No
Linear Feet of Water in well (estimate)	13.63	8.75	11.72	11.02	16.29	18.32	12.86	16.82	13.85
Water volume in well (estimate) (gal)	8.86	5.69	7.62	7.16	10.59	11.91	8.36	10.93	9.00
LPH thickness (ft)	NP	NP	NP	NP	NP	NP	NP	NP	NP
pH (before purging) (S.U.)	7.3	NM	NM	7.23	NM	NM	NM	NM	NM
DO (before purging) (mg/l)	16.31	NM	NM	8.73	NM	NM	NM	NM	NM
Temperature (before purging) (ºCelsius)	14.74	NM	NM	8.14	NM	NM	NM	NM	NM
Specific Conductance (before purging) (µs/cm)	1.05	NM	NM	7.75	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	Slight Tint	NM	NM	Green Tint	NM	NM	NM	NM	NM
Purge start time	10:07	10:00	10:40	9:27	NM	NM	NM	NM	NM
Purge end time	10:40	10:20	11:02	9:52	NM	NM	NM	NM	NM
Purge length (minutes)	0:33	0:20	0:22	0:25	NM	NM	NM	NM	NM
Purge method (bailer/pump)	Pump	Pump	Pump	Pump	NM	NM	NM	NM	NM
pH (while purging) (S.U.)	7.45	7.54	7.7	7.28	NM	NM	NM	NM	NM
DO (while purging) (mg/l)	5.03	0	0	5.27	NM	NM	NM	NM	NM
Temperature (while purging) (ºCelsius)	12.57	8.44	10.01	8.56	NM	NM	NM	NM	NM
Specific Conductance (while purging) (µs/cm)	1.06	6.72	1.83	7.65	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	Slight Tint	Light Yellow	Clear	Green Tint	NM	NM	NM	NM	NM
pH (after purging) (S.U.)	7.62	7.4	7.51	7.3	NM	NM	NM	NM	NM
DO (after purging) (mg/l)	3.1	0	0	9.37	NM	NM	NM	NM	NM
Temperature (after purging) (ºCelsius)	10.49	8.68	9.94	7.49	NM	NM	NM	NM	NM
Specific Conductance (after purging) (µs/cm)	1.06	6.68	1.82	7.61	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	Slight Tint	Light Yellow	Clear	Slight Tint	NM	NM	NM	NM	NM
Depth from TOC to water (before sampling)	6.12	5.13	3.14	5.27	NM	NM	NM	NM	NM
Time sampled	10:46	10:28	11:10	9:56	NM	NM	NM	NM	NM
pH (after sampling) (S.U.)	7.54	7.31	7.37	7.53	NM	NM	NM	NM	NM
DO (after sampling) (mg/l)	6.62	0	0	8.4	NM	NM	NM	NM	NM
Temperature (after sampling) (ºCelsius)	10.31	8.75	9.75	7.72	NM	NM	NM	NM	NM
Specific Conductance (after sampling) (µs/cm)	1.11	6.64	1.82	7.69	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	Slight Tint	Light Yellow	Clear	Slight Tint	NM	NM	NM	NM	NM
Depth from TOC to water (after sampling)	6.2	6.48	4.58	5.32	NM	NM	NM	NM	NM
COMMENTS: TM-6 Blocked, stops at 5.95 feet.									

Notes:

G - Good, P - Poor, Y - Yes, N - No, NM - Not Measured, N - Not Found, O - Other, TOC - Top of Casing, TOS - Top of Screen, NP - No Product, NA - Not Available

TABLE 10
Field Parameters
HESS CORPORATION - PORT READING, NJ
South Landfarm

Monitoring Date	April 25, 2012								
Weather conditions									
Well ID number	LS-1R	LS-2	LS-3	LS-4	PL-1	PL-3R	PL-6R	PL-9R	TM-6
Well permit	26-25324-1	26-07593-8	26-07594-6	26-07595-4	26-3776-0	P200800555	P200800557	P200800559	26-5262-8
Ground elevation (ft)	12.70	9.57	11.16	8.96	NA	NA	NA	NA	NA
Well diameter (in)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Top of casing elevation (ft)	14.49	11.69	10.70	11.25	11.82	12.27	11.49	11.26	17.68
Time gauged	11:15	14:20	13:25	12:25	NA	NA	NA	NA	NA
Depth to product from TOC (ft)	NP	NP	NP	NP	NM	NM	NM	NM	NM
Depth to water from TOC (ft)	3.1	1.61	0.55	1.85	NM	NM	NM	NM	NM
Depth to bottom from TOC (ft)	15.80	12.02	13.10	13.05	19.90	21.30	15.29	18.65	19.80
Depth from TOC to TOS (ft)	4.67	5.25	6.00	5.00	NA	4.00	4.75	3.80	NA
Ground Water Elevation (ft)	11.39	10.08	10.15	9.40	NM	NM	NM	NM	NM
Product/sheen on probe/bailer (Y/N)	No	No	No	No	NM	NM	NM	NM	NM
Linear Feet of Water in well (estimate)	12.70	10.41	12.55	11.20	NM	NM	NM	NM	NM
Water volume in well (estimate) (gal)	8.26	6.77	8.16	7.28	NM	NM	NM	NM	NM
LPH thickness (ft)	NP	NP	NP	NP	NM	NM	NM	NM	NM
pH (before purging) (S.U.)	7.01	7.24	7.31	7.42	NM	NM	NM	NM	NM
DO (before purging) (mg/l)	27.77	4.87	4.47	6.87	NM	NM	NM	NM	NM
Temperature (before purging) (ºCelsius)	15.43	15.09	14.9	14.57	NM	NM	NM	NM	NM
Specific Conductance (before purging) (µs/cm)	0.463	4.64	1.46	6.66	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	NM	NM	NM	NM	NM	NM	NM	NM	NM
Purge start time	11:15	14:20	13:25	12:25	NM	NM	NM	NM	NM
Purge end time	12:05	14:50	14:00	13:10	NM	NM	NM	NM	NM
Purge length (minutes)	0:50	0:30	0:35	0:45	NM	NM	NM	NM	NM
Purge method (bailer/pump)	Pump	Pump	Pump	Pump	NM	NM	NM	NM	NM
Purge rate (gal/min)	0.04	0.03	0.03	0.04	NM	NM	NM	NM	NM
pH (while purging) (S.U.)	7.05	7.42	7.19	7.58	NM	NM	NM	NM	NM
DO (while purging) (mg/l)	5.11	2.73	3.96	3.14	NM	NM	NM	NM	NM
Temperature (while purging) (ºCelsius)	15.59	15.2	15.01	14.85	NM	NM	NM	NM	NM
Specific Conductance (while purging) (µs/cm)	0.859	4.7	1.34	6.75	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	NM	NM	NM	NM	NM	NM	NM	NM	NM
pH (after purging) (S.U.)	7.09	7.43	7.12	7.6	NM	NM	NM	NM	NM
DO (after purging) (mg/l)	3.59	2.23	2.5	2.31	NM	NM	NM	NM	NM
Temperature (after purging) (ºCelsius)	15.61	15.3	15.08	15.1	NM	NM	NM	NM	NM
Specific Conductance (after purging) (µs/cm)	0.859	4.71	1.3	6.75	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	NM	NM	NM	NM	NM	NM	NM	NM	NM
Depth from TOC to water (before sampling)	3.1	1.61	0.55	1.85	NM	NM	NM	NM	NM
Time sampled	12:10	14:55	14:05	13:15	NM	NM	NM	NM	NM
pH (after sampling) (S.U.)	7.1	7.44	7.11	7.6	NM	NM	NM	NM	NM
DO (after sampling) (mg/l)	3.56	2.19	2.48	2.3	NM	NM	NM	NM	NM
Temperature (after sampling) (ºCelsius)	15.6	15.31	15.08	15.11	NM	NM	NM	NM	NM
Specific Conductance (after sampling) (µs/cm)	0.859	4.71	1.3	6.76	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	NM	NM	NM	NM	NM	NM	NM	NM	NM
Depth from TOC to water (after sampling)	3.1	1.61	0.55	1.85	NM	NM	NM	NM	NM
COMMENTS:									

Notes:
G - Good, P - Poor, Y - Yes, N - No, NM - Not Measured, N - Not Found, O - Other, TOC - Top of Casing, TOS - Top of Screen, NP - No Product, NA - Not Available

Table 11
Historic Groundwater Sampling Table - Volatiles
South Landfarm (Area of Concern #2)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

Volatiles															
Sample ID	**Date**	**Benzene**	**Chlorobenzene**	**Chloroethane**	**Chloroform**	**Dibromochloromethane**	**1,2-Dichlorobenzene**	**1,4-Dichlorobenzene**	**1,1-Dichloroethane**	**cis-1,2-Dichloroethene**	**Ethylbenzene**	**Toluene**	**Xylenes (total)**	**Methyl Tert Butyl Ether**	**Tertiary Butyl Alcohol**
NJDEP GWQS		**1**	**50**	**NA**	**70**	**1**	**600**	**75**	**50**	**70**	**700**	**600**	**1,000**	**70**	**100**
LS-1R	1/18/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/25/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/7/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/19/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.32	0.31	1.9	ND
	4/26/2006	0.42	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	38.9	11.3
	7/18/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	39.2	12.1
	10/19/2006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	1/24/2007	0.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	36.8	22.1
	4/18/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.5	ND
	7/20/2007	0.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	28.7	12.3
	10/26/2007	0.27	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	23.2	ND
	1/25/2008	0.52	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	35.9	14.1
	4/15/2008	0.25	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	34	15.7
	7/25/2008	0.19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	35.7	12.5
	10/14/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	36.3	14
	1/19/2009	0.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	29.5	ND
	4/27/2009	0.24	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	28.8	10.9
	7/31/2009	0.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21.2	ND
	10/27/2009	ND	0.38 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.4	ND
	1/27/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	24	ND
	4/5/2010	0.16	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.6	ND
	7/21/2010	ND	0.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.9	ND
	10/25/2010	0.32	0.32	0.23	ND	ND	ND	ND	ND	ND	ND	ND	ND	17.2	ND
	1/19/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	19.4	ND
	4/20/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20.4	ND
	7/20/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21.5	10.1J
	10/21/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.29J	ND	21.3	10.4J
	1/19/2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	13.3	ND
	4/25/2012	ND	0.36 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.0	ND

All data is reported in mg/kg unless otherwise noted
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NA- Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value

Table 11
Historic Groundwater Sampling Table - Volatiles
South Landfarm (Area of Concern #2)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

Volatiles															
Sample ID	**Date**	**Benzene**	**Chlorobenzene**	**Chloroethane**	**Chloroform**	**Dibromochloromethane**	**1,2-Dichlorobenzene**	**1,4-Dichlorobenzene**	**1,1-Dichloroethane**	**cis-1,2-Dichloroethene**	**Ethylbenzene**	**Toluene**	**Xylenes (total)**	**Methyl Tert Butyl Ether**	**Tertiary Butyl Alcohol**
NJDEP GWQS		**1**	**50**	**NA**	**70**	**1**	**600**	**75**	**50**	**70**	**700**	**600**	**1,000**	**70**	**100**
LS-2	1/18/2005	**9.4**	0.51	ND	ND	ND	ND	ND	ND	ND	0.3	ND	1.1	ND	ND
	4/25/2005	**18.5**	0.84	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.4	ND	ND
	10/7/2005	**12.5**	1.4	ND	ND	ND	ND	ND	ND	ND	ND	0.26	2.3	ND	ND
	1/19/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.69	ND
	4/26/2006	**23.1**	0.57	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6	ND	**140**
	7/18/2006	**17.3**	0.87	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.7	ND	**178**
	10/19/2006	**13.3**	1.0	ND	ND	ND	ND	ND	ND	ND	0.23	ND	1.8	ND	**187**
	1/24/2007	**11.6**	0.74	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6	ND	**171**
	4/18/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/20/2007	**14.4**	0.86	ND	ND	ND	ND	ND	ND	ND	0.24	ND	1.6	0.74	**180**
	10/26/2007	**10.6**	1.3	ND	ND	ND	ND	ND	ND	ND	0.27	ND	1.3	ND	**185**
	1/25/2008	**11.1**	0.87	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.5	0.74	**127**
	4/15/2008	**10.7**	0.86	ND	ND	ND	ND	ND	ND	ND	ND	0.36	1.3	ND	**105**
	7/25/2008	**12.7**	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	ND	**183**
	10/14/2008	**10.6**	1.4	ND	ND	ND	ND	ND	ND	ND	0.25	0.24	1.4	ND	**192**
	1/19/2009	**5.7**	0.43	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.84	ND	**114**
	4/27/2009	**7.5**	0.49	ND	ND	ND	ND	ND	0.11	ND	ND	0.23	0.97	ND	79.8
	7/31/2009	**11.0**	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.7	ND	**152**
	10/27/2009	**2.9**	0.36 J	ND	ND	ND	ND	ND	ND	ND	ND	0.29 J	0.58 J	ND	**198**
	1/27/2010	0.91	0.29	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	89.6
	4/5/2010	**8.7**	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.2	0.42	ND	91.1
	7/21/2010	**3.3**	0.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.53	ND	**125**
	10/25/2010	**1.7**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**127**
	1/19/2011	0.33	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	88
	4/20/2011	**3.8**	0.28	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	80.6
	7/20/2011	**1.5**	0.58J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.37J	ND	89.7
	10/21/2011	0.55J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**152**
	1/19/2012	0.49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/25/2012	**1.0**	0.50 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.55	ND	92.9

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Table 11
Historic Groundwater Sampling Table - Volatiles
South Landfarm (Area of Concern #2)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

Volatiles															
Sample ID	**Date**	**Benzene**	**Chlorobenzene**	**Chloroethane**	**Chloroform**	**Dibromochloromethane**	**1,2-Dichlorobenzene**	**1,4-Dichlorobenzene**	**1,1-Dichloroethane**	**cis-1,2-Dichloroethene**	**Ethylbenzene**	**Toluene**	**Xylenes (total)**	**Methyl Tert Butyl Ether**	**Tertiary Butyl Alcohol**
NJDEP GWQS		**1**	**50**	**NA**	**70**	**1**	**600**	**75**	**50**	**70**	**700**	**600**	**1,000**	**70**	**100**
LS-3	1/18/2005	**133**	ND	ND	ND	ND	ND	ND	ND	ND	0.55	3.9	4.2	ND	ND
	4/25/2005	**67.1**	ND	ND	ND	ND	ND	ND	ND	ND	0.52	1.2	2.7	ND	ND
	10/7/2005	**14.2**	ND	ND	ND	0.56	ND	ND	ND	ND	ND	0.38	0.88	ND	ND
	1/19/2006	ND	ND	ND	ND	ND	0.22	ND	ND	ND	ND	ND	0.62	1.6	**110**
	4/26/2006	**64.6**	ND	ND	ND	ND	ND	ND	ND	ND	1.1	1.6	3.2	1.7	**558**
	7/18/2006	**25.1**	ND	ND	ND	ND	ND	ND	0.72	ND	0.75	0.4	1.8	0.79	**1,140**
	10/19/2006	**47.2**	ND	ND	ND	ND	ND	ND	ND	ND	0.57	1.8	2.3	1.1	**660**
	1/24/2007	**125**	ND	ND	ND	ND	ND	ND	ND	ND	0.59	4	5.2	1.4	**141**
	4/18/2007	0.22	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/20/2007	**42.3**	ND	ND	ND	ND	ND	ND	ND	ND	0.73	0.75	2.5	0.9	**935**
	10/26/2007	**42.2**	ND	ND	ND	ND	ND	ND	ND	ND	0.43	1.6	1.4	0.73	**696**
	1/25/2008	**110**	ND	ND	0.23	ND	ND	ND	ND	ND	0.57	2.5	3.2	0.73	**195**
	4/15/2008	**53.9**	ND	ND	ND	ND	ND	ND	ND	ND	0.35	1	1.6	0.55	**251**
	7/25/2008	**21.2**	ND	ND	ND	ND	ND	ND	ND	0.36	0.38	0.32	0.97	0.53	**1,040**
	10/14/2008	**35.2**	ND	ND	ND	ND	ND	ND	0.43	ND	0.35	1.3	1.4	0.52	**854**
	1/19/2009	**83.8**	ND	ND	ND	ND	ND	ND	ND	ND	0.41	1.3	2.3	0.45	**208**
	4/27/2009	**44.3**	ND	ND	ND	ND	ND	ND	ND	ND	0.37	0.94	1.4	0.42	**247**
	7/31/2009	**24**	ND	ND	ND	ND	ND	ND	ND	ND	0.33	0.36	1	0.43	**825**
	10/27/2009	**60.6**	ND	ND	ND	ND	ND	ND	0.35 J	ND	0.34 J	2.18	2.1	ND	**686**
	1/27/2010	**82.6**	ND	ND	ND	ND	ND	ND	ND	ND	0.44 J	1.9	2.2	ND	**141**
	4/5/2010	**88.5**	ND	ND	ND	ND	ND	ND	ND	ND	0.49 J	1.7	2.3	ND	**130**
	7/21/2010	**14.8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.35	0.89	ND	**309**
	10/25/2010	**26.8**	ND	0.66	ND	ND	ND	ND	ND	ND	ND	0.77	0.93	ND	**755**
	1/19/2011	**103**	ND	ND	ND	ND	ND	ND	ND	ND	0.44	3.2	4.1	ND	**169**
	4/20/2011	**68.0**	ND	ND	ND	ND	ND	ND	ND	ND	0.42	0.91	1.0	ND	**149**
	7/20/2011	**18.3**	ND	ND	ND	ND	ND	ND	ND	ND	0.23J	ND	1.0	ND	**289**
	10/21/2011	**26.1**	ND	ND	ND	ND	ND	ND	0.30J	ND	0.22J	0.48J	0.82J	ND	**584**
	1/19/2012	**102**	ND	ND	ND	ND	ND	ND	ND	ND	0.45 J	2.7	3.5	ND	**149**
	4/25/2012	**23.3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.52 J	1.2	ND	71.9

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Table 11
Historic Groundwater Sampling Table - Volatiles
South Landfarm (Area of Concern #2)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

Volatiles															
Sample ID	**Date**	**Benzene**	**Chlorobenzene**	**Chloroethane**	**Chloroform**	**Dibromochloromethane**	**1,2-Dichlorobenzene**	**1,4-Dichlorobenzene**	**1,1-Dichloroethane**	**cis-1,2-Dichloroethene**	**Ethylbenzene**	**Toluene**	**Xylenes (total)**	**Methyl Tert Butyl Ether**	**Tertiary Butyl Alcohol**
NJDEP GWQS		**1**	**50**	**NA**	**70**	**1**	**600**	**75**	**50**	**70**	**700**	**600**	**1,000**	**70**	**100**
LS-4	1/18/2005	**64.7**	0.86	ND	ND	ND	0.59	ND	ND	ND	0.3	2.8	16.2	ND	ND
	4/25/2005	**152**	ND	ND	ND	ND	1.0	0.35	ND	ND	0.79	9.1	49.5	ND	ND
	10/7/2005	**83.2**	ND	ND	ND	ND	0.82	ND	ND	ND	ND	2.4	19.3	ND	ND
	1/19/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.27	0.79	1.9	**234**
	4/26/2006	**264**	0.37	0.64	ND	ND	1.2	ND	ND	ND	1.3	15.3	86.1	0.74	**1,120**
	7/18/2006	**251**	ND	ND	ND	ND	1.4	ND	ND	ND	1.2	12.3	80.0	ND	**2,400**
	10/19/2006	**152**	ND	ND	ND	ND	0.87	ND	ND	ND	ND	4.4	38.7	ND	**2,290**
	1/24/2007	**149**	ND	ND	ND	ND	1.1	ND	ND	ND	0.84	7.6	73.5	1.1	**878**
	4/18/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/20/2007	**189**	0.38	ND	ND	ND	1.2	ND	ND	ND	0.85	8.0	69.5	0.52	**1,620**
	10/26/2007	**107**	ND	ND	ND	ND	0.95	ND	ND	ND	0.57	3.5	55.9	0.66	**773**
	1/25/2008	**171**	0.29	0.43	ND	0.2	1.1	ND	ND	ND	1.0	8.7	98.5	0.67	**668**
	4/15/2008	**253**	ND	ND	ND	ND	1.5	ND	ND	ND	1.3	12.5	114	0.49	**1,110**
	7/25/2008	**179**	ND	ND	ND	ND	1.0	0.33	ND	0.36	0.7	6.9	73.9	0.51	**1,040**
	10/14/2008	**177**	0.35	ND	ND	ND	1.2	0.38	0.27	0.35	0.89	6.4	78.7	0.41	**1,380**
	1/19/2009	**143**	ND	ND	ND	ND	0.91	0.31	ND	ND	0.75	6.0	75.2	0.37	**573**
	4/27/2009	**244**	0.38	ND	ND	ND	ND	ND	0.34	ND	1.3	13.4	110	ND	**1,500**
	7/31/2009	**158**	ND	ND	ND	ND	0.81	ND	ND	ND	0.56	5.4	62.7	0.46	**783**
	10/27/2009	**20.8**	ND	ND	ND	ND	0.62 J	0.34 J	ND	ND	0.22 J	1.2	10.8	ND	**696**
	1/27/2010	**6.6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.35 J	3.1	ND	67
	4/5/2010	**15.2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.83	5.3	ND	**141**
	7/21/2010	**12.5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.89	5.8	ND	**106**
	10/25/2010	**4.6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.2	ND	**499**
	1/19/2011	**2.0**	ND	ND	ND	ND	0.25	ND	ND	ND	ND	0.34	1.8	ND	54.3
	4/20/2011	**10.5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.72	5.9	ND	89.2
	7/20/2011	**81.7**	ND	ND	ND	ND	0.62J	0.24J	ND	0.27J	0.41J	4.3	22.9	0.33J	**639**
	10/21/2011	**6.8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.35J	2.6	ND	ND
	1/19/2012	0.59 J	ND	ND	ND	ND	0.19 J	ND	ND	ND	ND	ND	0.79 J	ND	44.2
	4/25/2012	**1.20**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.82 J	ND	**129**

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NR- Not Reported
J- Estimate Value

Table 12
Historic Groundwater Sampling Table - Metals
South Landfarm (Area of Concern #2)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

Metals												
Sample ID	**Date**	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Selenium**	**Silver**	**Sodium**
NJDEP GWQS		**3**	**6,000**	**4**	**70**	**300**	**5**	**50**	**2**	**40**	**40**	**50,000**
LS-1R	1/18/2005	**40.6**	<200	<4.0	<10	**37,400**	<3.0	**8,460**	<0.20	<5.0	<10	**119,000**
	4/25/2005	**52.4**	<200	<4.0	<10	**40,500**	<3.0	**8,150**	<0.20	<5.0	<10	**123,000**
	7/27/2005	**16.2**	<200	<4.0	<10	**9,640**	<3.0	**6,200**	<0.20	<5.0	<10	**116,000**
	10/7/2005	**8.2**	<200	<4.0	<10	**26,600**	<3.0	**4,980**	<0.40	<5.0	<10	**115,000**
	1/19/2006	<6.0	<200	<4.0	<10	**112,000**	<3.0	**2,400**	<0.40	<5.0	<10	**284,000**
	4/26/2006	**15.0**	<200	<4.0	<10	**5,220**	<3.0	**2,560**	<0.40	<5.0	<10	**96,800**
	7/18/2006	**9.8**	<200	<4.0	<10	**23,900**	<3.0	**5,310**	<0.40	<5.0	<10	**108,000**
	1/24/2007	**10.0**	<200	<4.0	<10	**18,900**	<3.0	**5,930**	<0.20	<10	<10	**125,000**
	4/18/2007	**14.0**	<200	<4.0	<10	**104,000**	<3.0	**2,260**	<0.20	<5.0	<10	**221,000**
	7/20/2007	**15.1**	<200	<4.0	<10	**19,100**	**12.0**	**2,910**	<0.20	<10	<10	**93,900**
	10/26/2007	**16.2**	<200	<4.0	<10	**21,900**	<3.0	**4,350**	<0.20	<10	<10	**108,000**
	1/25/2008	**16.2**	<200	<4.0	<10	**22,400**	<3.0	**5,740**	<0.20	<10	<10	**109,000**
	4/15/2008	**142**	<200	<4.0	<10	**132,000**	**5.8**	**11,300**	<0.20	<10	<10	**114,000**
	7/25/2008	**22.2**	<200	<4.0	<10	**21,000**	<3.0	**5,730**	<0.20	18.9	<10	**96,900**
	10/14/2008	**33.7**	<200	<3.0	<10	**34,700**	<3.0	**9,750**	<0.20	<10	<10	**114,000**
	1/19/2009	**16.1**	<200	<3.0	<10	**38,800**	<3.0	**8,460**	<0.20	<10	<10	**118,000**
	4/27/2009	**16.8**	<200	<3.0	<10	**21,700**	<3.0	**8,060**	<0.20	<10	<10	**113,000**
	7/31/2009	**18.7**	<200	<4.0	<10	**26,500**	<3.0	**5,800**	<0.20	<10	<10	**106,000**
	10/27/2009	**14.0**	<200	<3.0	<10	**31,800**	**5.3**	**8,580**	<0.20	<10	<10	**123,000**
	1/27/2010	**12.5**	<200	<3.0	<10	**26,700**	<3.0	**8,840**	<0.20	<10	<10	**126,000**
	4/5/2010	**12.8**	<200	<3.0	<10	**28,000**	<3.0	**10,300**	<0.20	<10	<10	**119,000**
	7/21/2010	**17.8**	<200	<3.0	<10	**35,200**	<3.0	**13,600**	<0.20	<10	<10	**127,000**
	10/25/2010	**10.0**	<200	<3.0	<10	**20,000**	<3.0	**8,270**	<0.20	<10	<10	**123,000**
	1/19/2011	**15.9**	<200	<3.0	<10	**32,500**	<3.0	**7,940**	<0.20	<10	<10	**125,000**
	4/20/2011	**16.9**	<200	<3.0	<10	**32,700**	<3.0	**12,000**	<0.20	<10	<10	**119,000**
	7/20/2011	**19.0**	<200	<3.0	<10	**34,700**	<3.0	**13,400**	<0.20	<10	<10	**119,000**
	10/21/2011	**35.7**	257	<3.0	<10	**50,700**	<3.0	**15,500**	<0.20	<20	<10	**129,000**
	1/19/2012	**21.1**	<200	<3.0	<10	**27,500**	<3.0	**7,010**	<0.20	<10	<10	**123,000**
	4/25/2012	**12.1**	<200	<3.0	<10	**13,100**	<3.0	**3,170**	<0.20	<10	<10	**99,200**

All data is reported in mg/kg unless otherwise noted
ND- Not Detected
NA- Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value

Table 12
Historic Groundwater Sampling Table - Metals
South Landfarm (Area of Concern #2)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

Metals												
Sample ID	**Date**	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Selenium**	**Silver**	**Sodium**
NJDEP GWQS		**3**	**6,000**	**4**	**70**	**300**	**5**	**50**	**2**	**40**	**40**	**50,000**
LS-2	1/18/2005	**571**	4,590	**9.7**	69	**310,000**	**63.4**	**1,160**	<0.20	6.8	<10	**641,000**
	4/25/2005	**71.0**	3,010	<4.0	<10	**37,200**	<3.0	**603**	<0.20	<5.0	<10	**668,000**
	7/27/2005	**350**	5,040	<4.0	**99.7**	**108,000**	**76.7**	**1,020**	<0.20	<5.0	<10	**1,230,000**
	10/7/2005	**213**	4,690	<4.0	22.6	**48,100**	**18.4**	**657**	<0.40	<5.0	<10	**1,260,000**
	1/19/2006	**<6.0**	200	<4.0	<10	**28,400**	<3.0	**314**	<0.20	<5.0	<10	**96,300**
	4/26/2006	**73.0**	3,900	<4.0	<10	**19,600**	<3.0	**582**	<0.20	10.1	<10	**1,250,000**
	7/18/2006	**72.4**	4,290	<4.0	<10	**22,500**	**8.2**	**588**	<0.20	<10	<10	**110,000**
	10/19/2006	**96.8**	5,010	<4.0	<10	**19,900**	<3.0	**608**	<0.20	<10	<10	**1,370,000**
	1/24/2007	**57.5**	4,310	<4.0	<10	**26,600**	4.6	**624**	<0.20	<10	<10	**1,100,000**
	4/18/2007	**<5.0**	<200	<4.0	<10	**21,600**	<3.0	**267**	<0.20	<5.0	<10	**102,000**
	7/20/2007	**63.0**	4,470	<4.0	<10	**23,900**	**5.1**	**605**	<0.20	<10	<10	**1,200,000**
	10/26/2007	**386**	**8,790**	**<13**	<33	**130,000**	**17.3**	**1,210**	<0.40	<33	<33	**2,020,000**
	1/25/2008	**83.7**	3,150	<4.0	<10	**28,300**	<3.0	**541**	<0.20	<30	<10	**913,000**
	4/15/2008	**80.1**	2,290	**4.8**	<10	**27,000**	**5.1**	**491**	<0.20	<10	<10	**775,000**
	7/25/2008	**93.7**	4,400	<4.0	<10	**21,600**	**5.6**	**641**	<0.20	<10	<10	**1,090,000**
	10/14/2008	**117**	4,820	<3.0	<10	**22,900**	3.8	**654**	<0.20	<10	<10	**1,180,000**
	1/19/2009	**209**	3,400	**5.7**	14.1	**94,200**	**17.4**	**653**	<0.40	<10	<10	**684,000**
	4/27/2009	**78.8**	2,350	<3.0	<10	**30,200**	<3.0	**421**	<0.20	<10	<10	**580,000**
	7/31/2009	**228**	4,130	<3.0	17.6	**69,300**	**14.6**	**777**	<0.20	<10	<10	**961,000**
	10/27/2009	**35.9**	4,470	<3.0	<10	**15,300**	**12.9**	**595**	<0.20	<10	<10	**1,010,000**
	1/27/2010	**38.8**	2,770	<3.0	<10	**23,400**	<3.0	**545**	<0.20	<10	<10	**658,000**
	4/5/2010	**60.5**	3,130	<3.0	<10	**47,600**	<3.0	**625**	<0.20	<10	<10	**667,000**
	7/21/2010	**41.4**	4,420	<3.0	<10	**18,400**	<3.0	**577**	<0.20	<10	<10	**994,000**
	10/25/2010	**31.6**	4,520	<3.0	<10	**12,100**	<3.0	**443**	<0.20	36.1	<10	**1,080,000**
	1/19/2011	**40.1**	2,400	<3.0	<10	**15,400**	<3.0	**364**	<0.20	<10	<10	**611,000**
	4/20/2011	**29.5**	404	<3.0	<10	**13,100**	<3.0	**507**	<0.20	<10	<10	**579,000**
	7/20/2011	**47.4**	2,880	<3.0	<10	**16,800**	<3.0	**512**	<0.20	<10	<10	**926,000**
	10/21/2011	**25.5**	5,540	<3.0	<10	**8,330**	<3.0	**472**	<0.20	<10	<10	**912,000**
	1/19/2012	**26.2**	4,280	<3.0	41.7	**10,900**	<15	**576**	<0.20	<10	<10	**673,000**
	4/25/2012	**32.9**	3,160	<3.0	29.4	**13,800**	<3.0	**491**	<0.20	<10	<10	**612,000**

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NR- Not Reported
J- Estimate Value

Table 12
Historic Groundwater Sampling Table - Metals
South Landfarm (Area of Concern #2)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

Metals												
Sample ID	**Date**	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Selenium**	**Silver**	**Sodium**
NJDEP GWQS		**3**	**6,000**	**4**	**70**	**300**	**5**	**50**	**2**	**40**	**40**	**50,000**
LS-3	1/18/2005	**18.9**	<200	<4.0	<10	**37,500**	3.8	**1,130**	<0.20	<5.0	<10	**147,000**
	4/25/2005	**62.3**	514	<4.0	<10	**342,000**	<3.0	**2,000**	<0.20	<5.0	<10	**381,000**
	7/27/2005	**30.1**	593	<4.0	<10	**205,000**	<3.0	**4,080**	<0.20	<5.0	<10	**1,250,000**
	10/7/2005	**11.6**	447	<4.0	<10	**95,500**	<3.0	**2,450**	<0.40	<5.0	<10	**1,040,000**
	1/19/2006	**<6.0**	<200	<4.0	<10	**78,100**	<3.0	**1,500**	<0.20	<5.0	<10	**183,000**
	4/26/2006	**11.7**	283	<4.0	<10	**90,800**	<3.0	**2,560**	<0.20	<10	<10	**651,000**
	7/18/2006	**17.0**	479	**8.3**	<10	**138,000**	3.4	**3,670**	<0.20	<10	<10	**1,110,000**
	10/19/2006	**8.8**	348	<4.0	<10	**71,400**	<3.0	**1,930**	<0.20	<10	<10	**847,000**
	1/24/2007	**<8.0**	<200	<4.0	<4.0	**29,100**	<3.0	**987**	<0.20	<10	<10	**156,000**
	4/18/2007	**<5.0**	<200	<4.0	<4.0	**71,000**	<3.0	**555**	<0.20	<5	<10	**226,000**
	7/20/2007	**19.6**	443	<4.0	<10	**118,000**	**9.4**	**3,190**	<0.20	<10	<10	**1,060,000**
	10/26/2007	**13.3**	392	<4.0	<10	**65,800**	<3.0	**1,850**	<0.20	<10	<10	**799,000**
	1/25/2008	**23.8**	<200	<4.0	<10	**70,100**	<3.0	**1,080**	<0.40	<10	<10	**268,000**
	4/15/2008	**14.1**	<200	<4.0	<10	**44,200**	<3.0	**1,230**	<0.20	<10	<10	**358,000**
	7/25/2008	**46.8**	618	<4.0	<10	**174,000**	<3.0	**2,850**	<0.20	26.5	<10	**1,020,000**
	10/14/2008	**38.5**	490	<3.0	<10	**115,000**	<3.0	**1,780**	<0.20	<10	<10	**822,000**
	1/19/2009	**40.1**	223	<3.0	<10	**95,600**	<3.0	**941**	<0.40	<10	<10	**303,000**
	4/27/2009	**13.7**	<200	<3.0	<10	**39,700**	<3.0	**1,050**	<0.20	<10	<10	**393,000**
	7/31/2009	**42.0**	548	3.5	<10	**171,000**	<3.0	**2,630**	<0.20	<10	<10	**966,000**
	10/27/2009	**8.2**	348	<3.0	<10	**55,800**	<3.0	**1,350**	<0.20	<10	<10	**748,000**
	1/27/2010	**6.2**	<200	<3.0	<10	**27,000**	<3.0	**801**	<0.20	<10	<10	**281,000**
	4/5/2010	**16.1**	<200	<3.0	<10	**56,100**	<3.0	**830**	<0.20	<10	<10	**265,000**
	7/21/2010	**8.6**	321	<3.0	<10	**72,000**	<3.0	**1,230**	<0.20	<10	<10	**784,000**
	10/25/2010	**10.3**	463	<3.0	<10	**54,200**	<3.0	**1,650**	<0.20	<10	<10	**885,000**
	1/19/2011	**6.1**	<200	<3.0	<10	**28,700**	<3.0	**755**	<0.20	<10	<10	**300,000**
	4/20/2011	**5.9**	<200	<3.0	<10	**26,900**	<3.0	**808**	<0.20	<10	<10	**294,000**
	7/20/2011	**14.1**	469	<3.0	<10	**108,000**	<3.0	**2,050**	<0.20	<10	<10	**1,040,000**
	10/21/2011	**11.7**	417	<3.0	<10	**61,400**	<3.0	**1,100**	<0.20	<10	<10	**895,000**
	1/19/2012	**8.4**	<200	<3.0	<10	**20,800**	**7.0**	**590**	<0.20	<10	<10	**267,000**
	4/25/2012	**8.3**	<200	<3.0	<10	**14,900**	<3.0	**417**	<0.20	<10	<10	**177,000**

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J- Estimate Value

Table 12
Historic Groundwater Sampling Table - Metals
South Landfarm (Area of Concern #2)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

Metals												
Sample ID	**Date**	**Arsenic**	**Barium**	**Cadmium**	**Chromium**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Selenium**	**Silver**	**Sodium**
NJDEP GWQS		**3**	**6,000**	**4**	**70**	**300**	**5**	**50**	**2**	**40**	**40**	**50,000**
LS-4	1/18/2005	**47.7**	373	<4.0	<10	**45,700**	**6.4**	**606**	<0.20	<5.0	<10	**841,000**
	4/25/2005	**38.1**	567	<4.0	<10	**51,000**	**5.0**	**441**	<0.20	<5.0	<10	**1,670,000**
	7/27/2005	**81.3**	826	5.8	45.3	**158,000**	**26.5**	**822**	<0.20	<5.0	<10	**1,870,000**
	10/7/2005	**58.5**	648	**5.4**	19.5	**134,000**	**21.9**	**970**	<0.40	<5.0	<10	**1,560,000**
	1/19/2006	**9.3**	<200	<4.0	<10	**43,400**	<3.0	**528**	<0.20	<5	<10	**159,000**
	4/26/2006	**30.4**	314	<4.0	<10	**35,600**	<3.0	**1,000**	<0.20	<10	<10	**847,000**
	7/18/2006	**38.2**	445	<4.0	<10	**31,600**	<3.0	**735**	<0.20	<10	<10	**1,260,000**
	10/19/2006	**37.9**	543	<4.0	<10	**351,100**	<3.0	**519**	<0.20	<10	<10	**1,690,000**
	1/24/2007	**25.5**	478	<4.0	<10	**34,600**	<3.0	**743**	<0.20	<10	<10	**1,470,000**
	4/18/2007	**11.0**	<200	<4.0	<10	**27,300**	<3.0	**445**	<0.20	<5.0	<10	**84,100**
	7/20/2007	**36.1**	362	<4.0	<10	**27,300**	<3.0	**627**	<0.20	<10	<10	**998,000**
	10/26/2007	**41.6**	338	<4.0	<10	**27,600**	<3.0	**611**	<0.20	<10	<10	**851,000**
	1/25/2008	**25.5**	313	<4.0	<10	**25,800**	<3.0	**1,090**	<0.20	<10	<10	**995,000**
	4/15/2008	**32.2**	414	<4.0	<10	**35,400**	<3.0	**999**	<0.20	<10	<10	**1,220,000**
	7/25/2008	**41.4**	335	<4.0	<10	**27,500**	<3.0	**855**	<0.20	<10	<10	**870,000**
	10/14/2008	**39.2**	359	<3.0	<10	**25,200**	<3.0	**683**	<0.20	<10	<10	**1,030,000**
	1/19/2009	**27.5**	290	<3.0	<10	**22,400**	3.1	**787**	<0.20	<10	<10	**899,000**
	4/27/2009	**26.4**	246	<3.0	<10	**23,900**	<3.0	**857**	<0.20	<10	<10	**717,000**
	7/31/2009	**34.1**	443	<3.0	<10	**29,800**	<3.0	**520**	<0.20	<10	<10	**1,190,000**
	10/27/2009	**21.2**	352	<3.0	<10	**12,500**	<3.0	**473**	<0.20	<10	<10	**1,180,000**
	1/27/2010	**20.1**	335	<3.0	<10	**14,500**	<3.0	**375**	<0.20	<10	<10	**1,180,000**
	4/5/2010	**12.9**	282	<3.0	<10	**10,800**	<3.0	**393**	<0.20	<10	<10	**1,180,000**
	7/21/2010	**23.1**	262	<3.0	<10	**13,500**	<3.0	**235**	<0.20	<10	<10	**889,000**
	10/25/2010	**25.5**	326	<3.0	<10	**12,000**	<3.0	**321**	<0.20	<10	<10	**857,000**
	1/19/2011	**28.1**	327	<3.0	<10	**19,100**	<3.0	**314**	<0.20	<10	<10	**1,000,000**
	4/20/2011	**14.5**	250	<3.0	<10	**7,670**	<3.0	**365**	<0.20	<10	<10	**820,000**
	7/20/2011	**72.2**	435	<3.0	<10	**54,100**	4.1	**395**	<0.40	<10	<10	**993,000**
	10/21/2011	**22.1**	305	<3.0	<10	**9,400**	<3.0	**282**	<0.20	<10	<10	**992,000**
	1/19/2012	**20.1**	342	<3.0	12.2	**10,900**	<15	**311**	<0.20	<10	<10	**860,000**
	4/25/2012	**8.2**	282	<3.0	10.7	**3,310**	<3.0	**317**	<0.20	<10	<10	**1,040,000**

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NA- Not Applicable
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NR- Not Reported
J- Estimate Value

Table 13
Historic Groundwater Sampling Table - General Chemistry
South Landfarm (Area of Concern #2)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

General Chemistry												
Sample ID	**Date**	**Fluoride***	**Nitrogen, Nitrate + Nitrite***	**Nitrogen, Nitrate***	**Nitrogen, Nitrite***	**Phenols***	**Solids, Total Dissolved***	**Total Organic Halides***	**Total Organic Carbon***	**Nitrogen, Ammonia***	**Chloride***	**Sulfate***
NJDEP GWQS		**2**	**10**	**10**	**1**	**2**	**500**	**NA**	**NA**	**3**	**250**	**250**
LS-1R	1/18/2005	0.56	<0.10	<0.11	<0.010	NS	**611**	<0.10	20.6	0.46	135	<20
	4/25/2005	0.7	<0.10	<0.11	<0.010	NS	**531**	<0.20	14.8	1.4	123	<10
	10/7/2005	0.78	<0.10	<0.11	<0.010	NS	475	<0.10	14.8	**3.4**	114	<20
	1/19/2006	0.72	<0.10	<0.11	<0.010	NS	**1,440**	<0.20	6.1	**4.5**	**595**	231
	4/26/2006	0.56	<0.10	<0.11	<0.010	NS	360	<0.10	15.1	1.7	90	5.2
	7/18/2006	0.64	<0.10	<0.11	<0.010	NS	494	<0.10	14.5	**3.5**	103	<2.0
	10/19/2006	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/24/2007	0.74	0.13	0.13	<0.010	<0.20	**493**	<0.050	20.3	**2.7**	**108**	<10
	4/18/2007	0.81	0.13	0.13	<0.010	<0.20	**1,080**	<0.20	6.8	**4.1**	**368**	**292**
	7/20/2007	0.79	<0.10	<0.11	<0.010	<0.20	379	<0.050	15.2	2.8	86	<10
	10/26/2007	0.82	<0.10	<0.11	<0.010	<0.20	469	<0.050	17.4	**3.7**	94	<10
	1/25/2008	0.74	<0.10	<0.11	<0.010	<0.20	498	<0.050	14.8	2.8	111	<10
	4/15/2008	0.79	1.1	1.1	<0.010	<0.20	**529**	0.2	24.8	1.9	120	<10
	7/25/2008	0.88	<0.10	<0.11	<0.010	<0.20	451	<0.050	21.9	2.9	104	<10
	10/14/2008	0.93	0.14	0.14	<0.010	<0.20	480	<0.050	16	2.5	124	<10
	1/19/2009	0.66	<0.10	<0.11	<0.010	<0.20	**543**	<0.050	17.1	2.8	144	<10
	4/27/2009	0.71	<0.10	<0.11	<0.010	<0.20	496	<0.10	17.3	2.6	144	<10
	7/31/2009	0.86	<0.10	<0.11	<0.010	<0.20	422	<0.050	18	2.9	114	<10
	10/27/2009	0.89	<0.10	<0.11	<0.010	<0.20	**552**	<0.050	16.8	2.2	135	<10
	1/27/2010	0.78	<0.10	<0.11	<0.010	<0.20	**538**	<0.10	16.7	2.6	137	<10
	4/5/2010	0.83	0.16	0.16	<0.010	<0.20	**590**	<0.10	14.7	2	138	<10
	7/21/2010	0.99	<0.10	<0.11	<0.010	<0.20	**628**	<0.050	18.9	1.7	147	<10
	10/25/2010	0.88	<0.10	<0.11	<0.010	<0.20	**574**	<0.20	16.1	2.8	134	<10
	1/19/2011	0.56	<0.10	<0.11	<0.010	<0.20	**901**	<0.10	19.1	2.8	**286**	<10
	4/20/2011	0.67	<0.10	<0.11	<0.010	<0.20	**612**	<0.050	18.7	1.9	137	<10
	7/20/2011	0.73	<0.10	<0.11	<0.010	<0.20	**634**	<0.10	18.8	2.2	154	<10
	10/21/2011	0.71	<0.10	<0.11	<0.010	<0.20	**704**	<0.20	16.4	1.7	162	<10
	1/19/2012	0.80	<0.10	<0.11	<0.010	<0.20	**592**	<0.10	15.6	2.2	147	<10
	4/25/2012	0.76	<0.10	<0.11	<0.010	<0.20	460	<0.050	13.6	1.8	108	<10

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Table 13
Historic Groundwater Sampling Table - General Chemistry
South Landfarm (Area of Concern #2)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

General Chemistry												
Sample ID	**Date**	**Fluoride***	**Nitrogen, Nitrate + Nitrite***	**Nitrogen, Nitrate***	**Nitrogen, Nitrite***	**Phenols***	**Solids, Total Dissolved***	**Total Organic Halides***	**Total Organic Carbon***	**Nitrogen, Ammonia***	**Chloride***	**Sulfate***
NJDEP GWQS		**2**	**10**	**10**	**1**	**2**	**500**	**NA**	**NA**	**3**	**250**	**250**
LS-2	1/18/2005	<0.40	0.35	0.35	<0.010	<0.20	**3,470**	<0.20	62.1	1.7	**1,740**	<20
	4/25/2005	0.17	<0.10	<0.11	<0.010	<0.20	**3,600**	0.21	52.1	**4.1**	**1,590**	<10
	10/7/2005	<0.40	<0.10	<0.11	<0.010	<0.20	**5,890**	<0.20	61.8	**7.8**	**3,370**	<20
	1/19/2006	0.86	<0.10	<0.11	<0.010	<0.20	260	<0.20	3.5	2.4	72	11.5
	4/26/2006	<1.0	<0.10	<0.11	<0.010	<0.20	**5,540**	<0.20	50.7	**6**	**2,840**	3.5
	7/18/2006	<0.50	<0.10	<0.11	<0.010	<0.20	**5,060**	0.31	60.2	**7.1**	**2,840**	2
	10/19/2006	<0.40	<0.10	<0.11	<0.010	<0.20	**5,380**	0.33	62.8	**8.8**	**3,230**	3.2
	1/24/2007	<0.40	<0.10	<0.11	<0.010	<0.20	**4,060**	<0.20	64.9	**7.2**	**2,770**	<10
	4/18/2007	<0.59	<0.10	<0.11	<0.010	<0.20	292	<0.050	2.4	1.2	97	<20
	7/20/2007	<0.20	<0.10	<0.11	<0.010	<0.20	**4,180**	<0.20	60.6	**6.4**	**2,710**	<10
	10/26/2007	<0.20	<0.10	<0.11	<0.010	<0.20	**4,830**	0.2	77.2	**7**	**2,890**	<10
	1/25/2008	<0.20	<0.10	<0.11	<0.010	<0.20	**3,640**	<0.20	48.7	**5.5**	**2,060**	67.4
	4/15/2008	<0.20	<0.10	<0.11	<0.010	<0.20	**3,270**	0.27	55.7	**4.3**	**1,670**	97.9
	7/25/2008	<0.20	<0.10	<0.11	<0.010	<0.20	**4,910**	<0.050	62.2	**7.9**	**2,850**	<10
	10/14/2008	<0.25	0.13	0.13	<0.010	<0.20	**5,230**	<0.20	54.8	**7.7**	**2,770**	<10
	1/19/2009	<0.20	<0.10	<0.11	<0.010	<0.20	**2,860**	<0.20	53.4	**4.9**	**1,790**	<10
	4/27/2009	<0.20	<0.10	<0.11	<0.010	<0.20	**2,690**	<0.20	33.8	**3.7**	**1,410**	<10
	7/31/2009	<0.20	<0.10	<0.11	<0.010	<0.20	**4,250**	<0.050	62.3	**7.3**	**2,520**	<10
	10/27/2009	<0.20	<0.10	<0.11	<0.010	<0.20	**3,810**	<0.050	64.8	**7.2**	**2,440**	<10
	1/27/2010	<0.20	<0.10	<0.11	<0.010	<0.20	**2,710**	0.29	58.4	**4.6**	**1,500**	10.1
	4/5/2010	<0.20	0.15	0.15	<0.010	<0.20	**3,900**	<0.20	44.9	**4.8**	**2,000**	<10
	7/21/2010	<0.20	<0.10	<0.11	<0.010	<0.20	**4,640**	<0.20	57.2	**6.1**	**2,430**	<10
	10/25/2010	<0.20	0.28	0.28	<0.010	<0.20	**4,520**	<0.20	57.5	**7.3**	**2,610**	<10
	1/19/2011	<0.20	<0.10	<0.11	<0.010	<0.20	**2,610**	0.35	44.7	**4.3**	**1,530**	20.3
	4/20/2011	<0.20	<0.10	<0.11	<0.010	<0.20	**2,710**	<0.10	47.7	**3.4**	**1,330**	**283**
	7/20/2011	<0.20	<0.10	<0.11	<0.010	<0.20	**3,970**	<0.10	53.4	**5.2**	**1,940**	70.2
	10/21/2011	<0.20	<0.10	<0.11	<0.010	<0.20	**4,700**	0.69	52.0	**6.8**	**2,460**	<10
	1/19/2012	<0.20	<0.10	<0.11	<0.010	<0.20	**4,000**	0.38	56.0	**5.9**	**2,780**	<10
	4/24/2012	<0.20	<0.10	<0.11	<0.010	<0.20	**3,000**	0.22	39.1	**4.0**	**1,440**	16.1

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Table 13
Historic Groundwater Sampling Table - General Chemistry
South Landfarm (Area of Concern #2)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

General Chemistry												
Sample ID	**Date**	**Fluoride***	**Nitrogen, Nitrate + Nitrite***	**Nitrogen, Nitrate***	**Nitrogen, Nitrite***	**Phenols***	**Solids, Total Dissolved***	**Total Organic Halides***	**Total Organic Carbon***	**Nitrogen, Ammonia***	**Chloride***	**Sulfate***
NJDEP GWQS		**2**	**10**	**10**	**1**	**2**	**500**	**NA**	**NA**	**3**	**250**	**250**
LS-3	1/18/2005	<0.40	<0.10	<0.11	<0.010	<0.20	**661**	<0.10	16	2	240	<20
	4/25/2005	0.51	<0.10	<0.11	<0.010	<0.20	**1,630**	<0.20	20.8	2.9	**654**	<10
	10/7/2005	<0.40	<0.10	<0.11	<0.010	<0.20	**4,100**	0.59	30.6	**7.7**	**2,320**	<20
	1/19/2006	0.76	<0.10	<0.11	<0.010	<0.20	**819**	<0.20	11.9	**4.8**	**324**	<2.0
	4/26/2006	0.43	<0.10	<0.11	<0.050	<0.20	**2,590**	0.25	24.3	5	**1,360**	19.3
	7/18/2006	0.52	<0.10	<0.15	<0.050	<0.20	**4,930**	0.41	38.6	7.8	**2,660**	40.6
	10/19/2006	0.47	<0.10	<0.11	<0.010	<0.20	**3,320**	<0.20	27.2	**6.4**	**1,900**	2
	1/24/2007	0.55	<0.10	<0.11	<0.010	<0.20	**741**	<0.20	16.9	2.9	**296**	<10
	4/18/2007	0.57	0.13	0.13	<0.010	<0.20	**854**	<0.050	42	**3.8**	**382**	<20
	7/20/2007	0.64	<0.10	<0.11	<0.010	<0.20	**3,570**	<0.20	40.1	**6.8**	**2,190**	23
	10/26/2007	0.45	<0.10	<0.11	<0.010	<0.20	**3,320**	<0.20	37.1	**5.9**	**1,800**	<10
	1/25/2008	0.44	<0.10	<0.11	<0.010	<0.20	**1,070**	<0.20	17.2	**3.7**	**440**	<10
	4/15/2008	0.46	<0.10	<0.11	<0.010	<0.20	**1,510**	0.29	18.7	**4**	**706**	<10
	7/25/2008	0.52	<0.10	<0.11	<0.010	<0.20	**4,410**	<0.20	45.5	**8.3**	**2,590**	17.9
	10/14/2008	0.51	<0.10	<0.11	<0.010	<0.20	**3,290**	0.24	28.3	**6.4**	**1,910**	<10
	1/19/2009	0.47	<0.10	<0.11	<0.010	<0.20	**1,130**	<0.20	22.8	**3.8**	**451**	25.3
	4/27/2009	0.45	<0.10	<0.11	<0.010	<0.20	**1,290**	<0.10	19.3	**4.7**	**745**	<10
	7/31/2009	0.52	<0.10	<0.11	<0.010	<0.20	**3,560**	0.013	36.4	**8.3**	**2,340**	11.5
	10/27/2009	0.52	<0.10	<0.11	<0.010	<0.20	**2,740**	<0.10	27.1	**6.7**	**1,620**	<10
	1/27/2010	0.47	<0.10	<0.11	<0.010	<0.20	**928**	<0.20	17.8	**3.4**	**402**	<10
	4/5/2010	0.48	0.16	0.16	<0.010	<0.20	**913**	<0.10	17.2	**3.4**	**387**	<10
	7/21/2010	0.47	0.13	0.13	<0.010	<0.20	**2,940**	<0.20	32.3	**4.7**	**1,550**	<10
	10/25/2010	0.39	<0.10	<0.11	<0.010	<0.20	**4,360**	<0.20	40.1	**7.5**	**2,400**	<10
	1/19/2011	0.40	<0.10	<0.11	<0.010	<0.20	**1,040**	<0.20	16.8	**3.6**	**537**	<10
	4/20/2011	0.40	<0.10	<0.11	<0.010	<0.20	**1,140**	<0.20	20.1	**3.0**	**449**	13.3
	7/20/2011	0.41	<0.10	<0.11	<0.010	<0.20	**4,270**	<0.10	38.3	**7.0**	**2,150**	11.6
	10/21/2011	0.36	<0.10	<0.11	<0.010	<0.20	**3,850**	0.72	32.3	**6.7**	**2,030**	<10
	1/19/2012	0.41	<0.10	<0.11	<0.010	<0.20	**985**	<0.20	18.0	**3.4**	**383**	<10
	4/25/2012	0.52	<0.10	<0.12	<0.020	<0.20	**671**	<0.20	11.9	2.1	223	<10

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Table 13
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South Landfarm (Area of Concern #2)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

General Chemistry												
Sample ID	**Date**	**Fluoride***	**Nitrogen, Nitrate + Nitrite***	**Nitrogen, Nitrate***	**Nitrogen, Nitrite***	**Phenols***	**Solids, Total Dissolved***	**Total Organic Halides***	**Total Organic Carbon***	**Nitrogen, Ammonia***	**Chloride***	**Sulfate***
NJDEP GWQS		**2**	**10**	**10**	**1**	**2**	**500**	**NA**	**NA**	**3**	**250**	**250**
LS-4	1/18/2005	<0.40	<0.10	<0.11	<0.010	<0.25	**3,300**	<0.20	77.5	<0.10	**1,710**	<20
	4/25/2005	1.2	<0.10	<0.11	<0.010	<0.20	**4,680**	0.23	70.6	**47.3**	**2,170**	<10
	10/7/2005	<0.80	<0.10	<0.11	<0.010	<0.20	**5,530**	0.35	78.1	**75.1**	**3,470**	<20
	1/19/2006	1.3	<0.10	<0.11	<0.010	<0.20	**600**	<0.20	4.9	**2.3**	**269**	<2.0
	4/26/2006	0.86	<0.10	<0.11	<0.010	<0.20	**4,120**	<0.20	68.2	**57.8**	**2,430**	2.7
	7/18/2006	0.84	<0.10	<0.11	<0.010	<0.20	**4,690**	<0.20	93.7	**72.1**	**2,580**	<2.0
	10/19/2006	0.97	<0.10	<0.11	<0.010	<0.20	**4,600**	0.21	99.2	**76.4**	**2,500**	2.1
	1/24/2007	1	<0.10	<0.11	<0.010	<0.20	**4,360**	0.22	85.2	**53**	**2,560**	<10
	4/18/2007	1.3	<0.10	<0.11	<0.010	<0.20	400	<0.050	5.9	2.1	165	<20
	7/20/2007	1.1	<0.10	<0.11	<0.010	<0.20	**3,420**	<0.20	76.1	**55.6**	**2,080**	<10
	10/26/2007	0.93	<0.10	<0.11	<0.010	<0.20	**3,530**	<0.20	67.4	**57.8**	**1,860**	<10
	1/25/2008	0.73	<0.10	<0.11	<0.010	<0.20	**3,210**	<0.20	76.5	**50.6**	**586**	<10
	4/15/2008	0.92	<0.10	<0.11	<0.010	<0.20	**4,480**	0.27	76.4	**61.2**	**2,340**	<10
	7/25/2008	1.1	<0.10	<0.11	<0.010	<0.20	**3,710**	<0.050	70.1	**66.4**	**1,990**	<10
	10/14/2008	1.1	0.14	0.14	<0.010	<0.20	**4,560**	0.26	54.2	**61**	**2,510**	<10
	1/19/2009	0.73	<0.10	<0.11	<0.010	<0.20	**2,640**	<0.20	72	**54.8**	**1,330**	<10
	4/27/2009	<0.20	<0.10	<0.11	<0.010	<0.20	**2,820**	<0.20	70.9	**56.5**	**1,490**	<10
	7/31/2009	1.1	<0.10	<0.11	<0.010	<0.20	**3,680**	0.32	71.3	**65.6**	**2,490**	<10
	10/27/2009	0.97	<0.10	<0.11	<0.010	<0.20	**3,570**	<0.10	71.2	**70.5**	**2,100**	<10
	1/27/2010	0.91	<0.10	<0.11	<0.010	<0.20	**3,810**	0.13	77.6	**64.4**	**2,100**	<10
	4/5/2010	0.79	0.16	0.16	<0.010	<0.20	**3,618**	<0.10	69.9	**58.8**	**1,940**	<10
	7/21/2010	0.82	0.29	0.14	0.15	<0.20	**2,970**	<0.20	56	**52.4**	**1,630**	<10
	10/25/2010	0.84	<0.10	<0.11	<0.010	<0.20	**3,660**	0.41	70.5	**45.6**	**1,870**	<10
	1/19/2011	0.87	<0.10	<0.11	<0.010	<0.20	**3,350**	0.26	65.9	**65.6**	**2,110**	<10
	4/20/2011	0.7	<0.10	<0.11	<0.010	<0.20	**3,240**	0.24	69.5	**39.4**	**1,830**	<10
	7/20/2011	0.82	<0.10	<0.11	<0.010	<0.20	**3,740**	0.30	76.2	**73.0**	**1,870**	<10
	10/21/2011	0.78	<0.10	<0.11	<0.010	<0.20	**3,540**	0.37	47.4	**55.6**	**1,750**	<10
	1/19/2012	0.82	<0.10	<0.11	<0.010	<0.20	**3,710**	0.28	55.5	**62**	**1,890**	<10
	4/25/2012	0.76	<0.10	<0.11	0.013	<0.20	**3,580**	<0.20	55.9	**57.4**	**2,040**	20.9

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J- Estimate Value

Table 14
Well Construction Summary
Hess Corporation - Port Reading
No. 1 Landfarm

Well #	L1-1	L1-2	L1-3	L1-4	BG-2	BG-3	SP-1	SP-2	SP-3	TF-1	TF-2	TF-3
Well Permit	26-0806-8	26-0806-5	26-0806-6	26-0806-7	26-0813-2	IU	26-2533-8	26-2533-9	26-2534-0	IU	IU	IU
Total Depth	15.00	13.85	10.90	10.90	10.87	IU	14.11	14.69	14.90	10.27	IU	11.76
Well Diameter (inches)	4.00	4.00	4.00	4.00	4.00	4.00	2.00	2.00	2.00	2.00	2.00	2.00
Top of Casing Elevation	13.38	10.98	11.50	12.97	11.13	12.54	14.07	15.24	14.66	10.82	10.13	10.73
Ground Elevation	12.80	9.81	10.30	11.10	9.62	IU	IU	IU	IU	IU	IU	IU
Depth of Well Screen	5.00	4.00	4.00	4.00	4.20	IU	5.00	4.75	4.00	IU	IU	0.00

Notes:
1) Unless otherwise designated, all measurments in feet.
2) IU - Information Unknown

TABLE 15
Field Parameters
HESS CORPORATION - PORT READING, NJ
No. 1 Landfarm

Monitoring Date	January 19, 2012										
Weather conditions	Sunny, 30's										
Well ID number	L1 - 1	L1 - 2	L1 - 3	L1 - 4	BG-2	SP-1	SP-2	SP-3	TF1	TF2	TF3
Well permit	26-0806-8	26-0806-5	26-0806-6	26-0806-7	26-0813-2	26-2533-8	26-2533-9	26-2534-0	NA	NA	NA
Ground elevation (ft)	12.8	9.81	10.3	11.1	9.62	NA	NA	NA	NA	NA	NA
Well diameter (in)	4.0	4.0	4.0	4.0	4.0	2.0	2.0	2.0	4.0	4.0	4.0
Top of casing elevation (ft)	13.38	10.98	11.50	12.97	11.13	14.07	15.24	14.66	10.82	10.13	10.73
Time gauged	12:09	11:30	10:53	11:27	12:10	11:58	11:59	12:01	10:32	10:39	10:35
Depth to product from TOC (ft)	NP	NP	NP	NP	NP	NP	NP	NP	NP	1.82	NP
Depth to water from TOC (ft)	6.51	6.46	6.99	8.41	4.29	5.83	7.29	6.01	2.7	2.24	1.97
Depth to bottom from TOC (ft)	15.00	13.38	10.90	10.90	10.87	14.11	14.69	14.90	10.07	11.80	11.76
Depth from TOC to TOS (ft)	5.00	4.00	1.20	1.87	4.2	5.00	4.75	4.00	NA	NS	0.00
Ground Water Elevation (ft)	6.87	4.52	4.51	4.56	6.84	8.24	7.95	8.65	8.10	NS	8.76
Product/sheen on probe/bailer (Y/N)	No	No	No	No	No	No	No	No	No	Yes	No
Linear Feet of Water in well (estimate)	8.49	6.92	3.91	2.49	6.58	8.28	7.40	8.89	7.35	NS	9.79
Water volume in well (estimate) (gal)	5.52	4.50	2.54	1.62	4.28	5.38	4.81	5.78	4.78	NS	6.36
LPH thickness (ft)	NP	NP	NP	NP	NP	NP	NP	NP	NP	0.42	NP
pH (before purging) (S.U.)	7.89	NM	7.86	7.92	NM	NM	NM	NM	NM	NM	NM
DO (before purging) (mg/l)	10.35	NM	2.7	6	NM	NM	NM	NM	NM	NM	NM
Temperature (before purging) (ºCelsius)	12.42	NM	14.97	12.31	NM	NM	NM	NM	NM	NM	NM
Specific Conductance (before purging) (µs/cm)	0.197	NM	0.797	0.332	NM	NM	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	Clear	NM	Slight Tint	Clear	NM	NM	NM	NM	NM	NM	NM
Purge start time	12:09	11:30	10:53	11:27	12:10	NM	NM	NM	NM	NM	NM
Purge end time	12:48	11:50	11:14	11:46	12:33	NM	NM	NM	NM	NM	NM
Purge length (minutes)	0:39	0:20	0:21	0:19	0:23	NM	NM	NM	NM	NM	NM
Purge method (bailer/pump)	Pump	Pump	Pump	Pump	Pump	NM	NM	NM	NM	NM	NM
pH (while purging) (S.U.)	8.13	7.99	7.86	7.93	7.43	NM	NM	NM	NM	NM	NM
DO (while purging) (mg/l)	9.1	0	8.69	9.35	0	NM	NM	NM	NM	NM	NM
Temperature (while purging) (ºCelsius)	11.88	10.99	13.03	9.64	8.07	NM	NM	NM	NM	NM	NM
Specific Conductance (while purging) (µs/cm)	0.067	0.517	0.783	0.321	0.184	NM	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	Clear	Light Yellow	Slight Tint	Clear	Light Yellow	NM	NM	NM	NM	NM	NM
pH (after purging) (S.U.)	8.07	7.37	7.84	7.93	6.64	NM	NM	NM	NM	NM	NM
DO (after purging) (mg/l)	8.69	0	8.69	7.19	0	NM	NM	NM	NM	NM	NM
Temperature (after purging) (ºCelsius)	11.89	11.27	12.52	9.53	8.04	NM	NM	NM	NM	NM	NM
Specific Conductance (after purging) (µs/cm)	0.067	0.653	0.772	0.317	0.192	NM	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	Clear	Light Yellow	Slight Tint	Slight Tint	Light Yellow	NM	NM	NM	NM	NM	NM
Depth from TOC to water (before sampling)	8.41	6.78	7.01	9.02	6.35	NM	NM	NM	NM	NM	NM
Time sampled	12:52	11:56	11:15	11:49	12:40	NM	NM	NM	NM	NM	NM
pH (after sampling) (S.U.)	8.07	7.29	7.9	7.8	6.37	NM	NM	NM	NM	NM	NM
DO (after sampling) (mg/l)	8.24	0	9.19	7.26	0	NM	NM	NM	NM	NM	NM
Temperature (after sampling) (ºCelsius)	11.92	10.86	12.48	9.72	8.29	NM	NM	NM	NM	NM	NM
Specific Conductance (after sampling) (µs/cm)	0.067	0.687	0.768	0.319	0.264	NM	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	Clear	Light Yellow	Slight Tint	Slight Tint	Light Yellow	NM	NM	NM	NM	NM	NM
Depth from TOC to water (after sampling)	9.04	6.84	7.05	9.19	6.36	NM	NM	NM	NM	NM	NM
COMMENTS:											

Notes:
G - Good, P - Poor, Y - Yes, N - No, NM - Not Measured, N - Not Found, O - Other, TOC - Top of Casing, TOS - Top of Screen, NP - No Product, NA - Not Available

TABLE 16
Field Parameters
HESS CORPORATION - PORT READING, NJ
No. 1 Landfarm

Monitoring Date	April 24, 2012										
Weather conditions	Sunny										
Well ID number	L1 - 1	L1 - 2	L1 - 3	L1 - 4	BG-2	SP-1	SP-2	SP-3	TF1	TF2	TF3
Well permit	26-0806-8	26-0806-5	26-0806-6	26-0806-7	26-0813-2	26-2533-8	26-2533-9	NA	NA	NA	NA
Ground elevation (ft)	12.8	9.81	10.3	11.1	9.62	NA	NA	NA	NA	NA	NA
Well diameter (in)	4.0	4.0	4.0	4.0	4.0	2.0	2.0	2.0	4.0	4.0	4.0
Top of casing elevation (ft)	13.38	10.98	11.50	12.97	11.13	14.07	15.24	14.66	10.82	10.13	10.73
Time gauged	10:58	12:15	11:40	12:20	9:25	NA	NA	NA	NA	Skimmer	NA
Depth to product from TOC (ft)	NP	NP	NP	NP	NP	NM	NM	NM	NM	NM	NM
Depth to water from TOC (ft)	7.25	6.4	6.85	8.2	4.21	NM	NM	NM	NM	NM	NM
Depth to bottom from TOC (ft)	14.80	14.41	10.95	10.98	10.9	14.11	14.69	14.69	10.07	11.80	11.76
Depth from TOC to TOS (ft)	5.00	4.00	4.00	4.00	4.2	NA	4.75	4.75	NA	NA	0.00
Ground Water Elevation (ft)	6.13	4.58	4.65	4.77	6.92	NM	NM	NM	NM	NM	NM
Product/sheen on probe/bailer (Y/N)	NP	NP	NP	NP	NP	NM	NM	NM	NM	NM	NM
Linear Feet of Water in well (estimate)	7.55	8.01	4.10	2.78	6.69	NM	NM	NM	NM	NM	NM
Water volume in well (estimate) (gal)	4.91	5.21	2.67	1.81	4.35	NM	NM	NM	NM	NM	NM
LPH thickness (ft)	NP	NP	NP	NP	NP	NM	NM	NM	NM	NM	NM
pH (before purging) (S.U.)	6.7	6.69	7.01	7.39	6.2	NM	NM	NM	NM	NM	NM
DO (before purging) (mg/l)	25.37	16.15	19.2	18.57	33.8	NM	NM	NM	NM	NM	NM
Temperature (before purging) (ºCelsius)	14.56	14.31	14.52	15.81	14.56	NM	NM	NM	NM	NM	NM
Specific Conductance (before purging) (µs/cm)	0.184	0.552	0.861	0.38	0.192	NM	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Purge start time	10:58	12:15	11:40	12:20	9:25	NM	NM	NM	NM	NM	NM
Purge end time	11:28	12:45	12:10	12:50	9:53	NM	NM	NM	NM	NM	NM
Purge length (minutes)	0:30	0:30	0:30	0:30	0:28	NM	NM	NM	NM	NM	NM
Purge method (bailer/pump)	Pump	Pump	Pump	Pump	Pump	NM	NM	NM	NM	NM	NM
pH (while purging) (S.U.)	6.09	6.47	7.22	7.39	6.3	NM	NM	NM	NM	NM	NM
DO (while purging) (mg/l)	12.13	4.26	20.07	11.7	3.99	NM	NM	NM	NM	NM	NM
Temperature (while purging) (ºCelsius)	14.37	13.84	14.15	15.6	14.82	NM	NM	NM	NM	NM	NM
Specific Conductance (while purging) (µs/cm)	0.164	0.706	0.949	0.378	0.191	NM	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
pH (after purging) (S.U.)	6.1	6.49	7.23	7.4	6.3	NM	NM	NM	NM	NM	NM
DO (after purging) (mg/l)	12.11	4.27	20.09	11.68	3.95	NM	NM	NM	NM	NM	NM
Temperature (after purging) (ºCelsius)	14.4	13.86	14.16	15.59	14.81	NM	NM	NM	NM	NM	NM
Specific Conductance (after purging) (µs/cm)	0.165	0.709	0.951	0.376	0.191	NM	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Depth from TOC to water (before sampling)	7.36	6.6	6.93	8.36	5.18	NM	NM	NM	NM	NM	NM
Time sampled	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
pH (after sampling) (S.U.)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
DO (after sampling) (mg/l)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Temperature (after sampling) (ºCelsius)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Specific Conductance (after sampling) (µs/cm)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Appearance (ie. color, clarity, turbid)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Depth from TOC to water (after sampling)	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
COMMENTS:											

Notes:
G - Good, P - Poor, Y - Yes, N - No, NM - Not Measured, N - Not Found, O - Other, TOC - Top of Casing, TOS - Top of Screen, NP - No Product, NA - Not Available

Table 17
Historic Groundwater Sampling Table - Volatiles
No. 1 Landfarm (Area of Concern #3)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

Sample ID	Date	Benzene	Chlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	cis-1,2-Dichloroethene	Ethylbenzene	Tetrachloroethene	Toluene	Vinyl chloride	Xylenes (total)	Total TIC, Volatile	Methyl Tert Butyl Ether	Tertiary Butyl Alcohol
NJDEP GWQS		**1**	**50**	**600**	**600**	**75**	**70**	**700**	**1**	**600**	**1**	**1,000**	**500**	**70**	**100**
L1-1	1/21/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS
	4/28/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS
	7/22/2005	ND	ND	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/28/2005	ND	2.8	0.47	0.23	0.26	ND	ND	0.34	ND	ND	ND	4.2	NS	NS
	1/20/2006	ND	ND	ND	ND	ND	ND	ND	0.27	ND	ND	ND	ND	ND	ND
	4/28/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/21/2006	ND	ND	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/23/2006	ND	ND	ND	ND	ND	ND	ND	0.34	ND	ND	ND	ND	ND	ND
	1/26/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/20/2007	ND	4.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/27/2007	ND	ND	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/30/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/11/2008	ND	0.52	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/17/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/22/2008	ND	ND	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/29/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/22/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/29/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/29/2009	ND	ND	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/26/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/5/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/22/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/19/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/20/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/20/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/21/2011	ND	ND	ND	ND	ND	ND	ND	0.39J	ND	ND	ND	ND	ND	ND
	1/19/2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/24/2012	ND	ND	ND	ND	ND	ND	ND	0.19 J	ND	ND	ND	ND	ND	ND

All data is reported in ug/kg unless otherwise noted
ND- Not Detected
NA- Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value

Table 17
Historic Groundwater Sampling Table - Volatiles
No. 1 Landfarm (Area of Concern #3)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

Sample ID	Date	Benzene	Chlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	cis-1,2-Dichloroethene	Ethylbenzene	Tetrachloroethene	Toluene	Vinyl chloride	Xylenes (total)	Total TIC, Volatile	Methyl Tert Butyl Ether	Tertiary Butyl Alcohol
NJDEP GWQS		**1**	**50**	**600**	**600**	**75**	**70**	**700**	**1**	**600**	**1**	**1,000**	**500**	**70**	**100**
L1-2	1/21/2005	ND	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS
	4/28/2005	ND	0.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS
	7/22/2005	ND	ND	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/28/2005	ND	5.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS
	1/20/2006	ND	6.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/28/2006	ND	0.54	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/21/2006	ND	12.3	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/23/2006	ND	0.71	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/26/2007	0.32	8.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/20/2007	ND	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/27/2007	ND	2.4	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/30/2007	ND	3.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/11/2008	0.27	14.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/17/2008	0.44	9.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/22/2008	ND	21.8	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/29/2008	ND	5.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/22/2009	0.61	21.7	0.2	0.37	1.1	0.25	ND	ND	ND	ND	ND	ND	ND	ND
	4/29/2009	0.33	16.3	ND	0.36	0.94	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/29/2009	ND	11.5	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/27/2009	ND	6.4	ND	ND	0.51 J	ND	ND	ND	0.23 J	ND	ND	ND	ND	ND
	1/27/2010	0.3	26.5	ND	0.62	1.6	0.28	ND	ND	ND	ND	ND	3.2	ND	ND
	4/5/2010	0.42	24.8	ND	0.43	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/22/2010	ND	4.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/2010	ND	10.0	ND	ND	0.51	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/19/2011	ND	9.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/20/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/20/2011	ND	6.2	ND	ND	0.38 J	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/21/2011	ND	**65.7**	0.78 J	1.2	3.0	0.61J	ND	ND	0.43J	ND	0.33J	6.2(1)J	ND	ND
	1/19/2012	ND	25.9	0.36 J	0.52 J	1.3	0.27 J	ND	ND	ND	ND	ND	14.64 (1) J	ND	ND
	4/24/2012	ND	5.2	ND	ND	0.39 J	ND	ND	ND	ND	ND	ND	5.59 (2) J	ND	ND

All data is reported in ug/kg unless otherwise noted
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NA- Not Applicable
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NR- Not Reported
J- Estimate Value

Table 17
Historic Groundwater Sampling Table - Volatiles
No. 1 Landfarm (Area of Concern #3)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

Sample ID	Date	Benzene	Chlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	cis-1,2-Dichloroethene	Ethylbenzene	Tetrachloroethene	Toluene	Vinyl chloride	Xylenes (total)	Total TIC, Volatile	Methyl Tert Butyl Ether	Tertiary Butyl Alcohol
NJDEP GWQS		**1**	**50**	**600**	**600**	**75**	**70**	**700**	**1**	**600**	**1**	**1,000**	**500**	**70**	**100**
L1-3	1/21/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS
	5/4/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.5	NS	NS
	7/22/2005	ND	ND	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/28/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS
	1/20/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.1	ND
	4/28/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.4	ND
	7/21/2006	ND	ND	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	2.9	ND
	10/23/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.5	ND
	1/26/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2	ND
	4/20/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.79	ND
	7/27/2007	ND	ND	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/30/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.83	ND
	1/11/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.72	ND
	4/17/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.58	ND
	7/22/2008	ND	ND	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	0.71	ND
	10/29/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.72	ND
	1/22/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.81	ND
	4/29/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.64	ND
	7/29/2009	ND	ND	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	0.63	ND
	10/26/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.61	ND
	1/27/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.59	ND
	4/5/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.0	ND
	7/22/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.0	ND
	1/19/2011	Could not locate due to snow.													
	4/20/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.34	ND
	7/20/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.40J	ND
	10/21/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.73J	ND
	1/19/2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.30 J	ND
	4/24/2012	ND	0.24 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.30 J	ND

All data is reported in ug/kg unless otherwise noted
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NA- Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value

Table 17
Historic Groundwater Sampling Table - Volatiles
No. 1 Landfarm (Area of Concern #3)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

Sample ID	Date	Benzene	Chlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	cis-1,2-Dichloroethene	Ethylbenzene	Tetrachloroethene	Toluene	Vinyl chloride	Xylenes (total)	Total TIC, Volatile	Methyl Tert Butyl Ether	Tertiary Butyl Alcohol
NJDEP GWQS		**1**	**50**	**600**	**600**	**75**	**70**	**700**	**1**	**600**	**1**	**1,000**	**500**	**70**	**100**
L1-4	1/21/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS
	5/4/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS
	7/22/2005	ND	ND	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/28/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS
	1/20/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/28/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/21/2006	ND	ND	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/23/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/26/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/20/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/27/2007	ND	ND	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/30/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/11/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/17/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/22/2008	ND	ND	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/29/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/22/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/29/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/29/2009	ND	ND	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/26/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/5/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/22/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/19/2011	Could not locate due to snow.													
	4/20/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/20/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/21/2011	ND	ND	ND	ND	ND	ND	ND	ND	0.29J	ND	ND	ND	ND	ND
	1/19/2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/24/2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

All data is reported in ug/kg unless otherwise noted
ND- Not Detected
NA- Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value

Table 17
Historic Groundwater Sampling Table - Volatiles
No. 1 Landfarm (Area of Concern #3)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

Sample ID	Date	Benzene	Chlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	cis-1,2-Dichloroethene	Ethylbenzene	Tetrachloroethene	Toluene	Vinyl chloride	Xylenes (total)	Total TIC, Volatile	Methyl Tert Butyl Ether	Tertiary Butyl Alcohol
NJDEP GWQS		**1**	**50**	**600**	**600**	**75**	**70**	**700**	**1**	**600**	**1**	**1,000**	**500**	**70**	**100**
BG-2	1/21/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS
	4/28/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.0	NS	NS
	7/22/2005	ND	0.76	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	ND	ND
	10/28/2005	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS
	1/20/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/28/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.42	ND
	7/21/2006	ND	0.56	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	1.4	ND
	10/23/2006	ND	0.44	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.76	ND
	1/26/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/20/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/27/2007	ND	0.75	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	1.7	26.4
	10/30/2007	ND	0.75	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	ND
	1/11/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/17/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/22/2008	ND	0.38	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	0.52	ND
	10/29/2008	ND	0.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.66	16.1
	1/22/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/29/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/29/2009	ND	0.52	NS	NS	NS	NS	ND	NS	ND	ND	ND	ND	1.8	61.8
	10/26/2009	ND	0.94 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/5/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/22/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.49	40
	1/19/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/20/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/20/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/21/2011	ND	0.61 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.5(1)J	1.2	52.7
	1/19/2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/24/2012	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

All data is reported in ug/kg unless otherwise noted
ND- Not Detected
NA- Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value

Table 18
Historic Groundwater Sampling Table - Metals
No. 1 Landfarm (Area of Concern #3)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

		Metals															
Sample ID	**Date**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium**	**Copper**	**Cobalt**	**Lead**	**Mercury**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
NJDEP GWQS		**6**	**3**	**6,000**	**1**	**4**	**70**	**1,300**	**100**	**5**	**2**	**100**	**40**	**40**	**2**	**N/A**	**2,000**
L1-1	1/21/2005	NS	<5.0	NS	NS	<4.0	<10	<25	NS	3.1	<0.20	<40	<5.0	<10	NS	NS	90.7
	4/28/2005	NS	<5.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<5.0	<10	NS	NS	142
	7/22/2005	**6.7**	<5.0	NS	<5.0	<4.0	<10	<25	NS	<3.0	<0.20	<40	<5.0	NS	<10	NS	NS
	10/28/2005	NS	<5.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<5.0	<10	NS	NS	<20
	1/20/2006	NS	<5.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<5.0	<10	NS	NS	163
	4/28/2006	NS	<8.0	NS	NS	<4.0	<10	<25	NS	3.8	<0.20	<40	<10	<10	NS	NS	114
	7/21/2006	<6.0	<8.0	NS	<1.0	<4.0	<10	<50	NS	<3.0	<0.20	<40	<10	NS	<10	NS	NS
	10/23/2006	NS	<8.0	NS	NS	<4.0	<10	<25	NS	3.1	<0.20	<40	<10	<10	NS	NS	179
	1/26/2007	NS	<8.0	NS	NS	<4.0	17.2	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	163
	4/20/2007	NS	<8.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	46.6
	7/27/2007	<6.0	<6.0	NS	<1.0	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	NS	<10	NS	NS
	10/30/2007	NS	<8.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	104
	1/11/2008	NS	<8.0	NS	NS	<4.0	<10	<25	NS	**6.6**	<0.20	<40	<10	<10	NS	NS	105
	4/17/2008	NS	<8.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	200
	7/22/2008	<6.0	<3.0	NS	<1.0	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	NS	<10	NS	NS
	10/29/2008	NS	<3.0	NS	NS	<3.0	<10	<10	NS	<3.0	<0.20	20.1	<10	<10	NS	NS	146
	1/22/2009	NS	<3.0	NS	NS	<3.0	<10	<10	NS	<3.0	<0.20	17.7	<10	<10	NS	NS	210
	4/29/2009	NS	<3.0	NS	NS	<3.0	<10	<10	NS	<3.0	<0.20	22.8	<10	<10	NS	NS	185
	7/29/2009	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	15.2	<10	NS	<10	NS	NS
	10/26/2009	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	18.4	<10	<10	<10	NS	161
	1/27/2010	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	13.4	<10	<10	<10	NS	155
	4/5/2010	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	92.3
	7/22/2010	<6.0	<3.0	<200	<1.0	<3.0	<10	NS	<50	<3.0	<0.20	<10	<10	NS	NS	<50	NS
	10/25/2010	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	150
	1/19/2011	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	15.6	<10	<10	<10	NS	106
	4/20/2011	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	15.8	<10	<10	<10	NS	156
	7/20/2011	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	16.9	<10	<10	<2.0	NS	237
	10/21/2011	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<2.0	NS	79.2
	1/19/2012	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	11.3	<10	<10	<2.0	NS	125
	4/24/2012	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<2.0	NS	50.8
L1-2	1/21/2005	NS	<5.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<5.0	<10	NS	NS	<20
	4/28/2005	NS	<5.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	5.4	<10	NS	NS	<20
	7/22/2005	<5.0	<5.0	NS	<5.0	<4.0	<10	<25	NS	<3.0	<0.20	<40	<5.0	NS	<10	NS	NS
	10/28/2005	NS	<5.0	NS	NS	<4.0	<10	<25	NS	3.6	<0.20	<40	<5.0	<10	NS	NS	<20
	1/20/2006	NS	<5.0	NS	NS	<4.0	<10	<25	NS	4.7	<0.20	<40	<5.0	<10	NS	NS	<20
	4/28/2006	NS	<8.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	<20
	7/21/2006	<6.0	<8.0	NS	<1.0	<4.0	<10	<50	NS	<3.0	<0.20	<40	<10	NS	<10	NS	NS
	10/23/2006	NS	<8.0	NS	NS	<4.0	<10	<25	NS	**6.8**	<0.20	<40	<10	<10	NS	NS	<20
	1/26/2007	NS	<8.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	<20
	4/20/2007	NS	<8.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	<20
	7/27/2007	<6.0	<6.0	NS	<1.0	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	NS	<10	NS	NS
	10/30/2007	NS	<8.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	<20
	1/11/2008	NS	<8.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	<20
	4/17/2008	NS	<8.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	<20
	7/22/2008	<6.0	**6.6**	NS	<1.0	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	NS	<2.0	NS	NS
	10/29/2008	NS	**7.2**	NS	NS	<3.0	<10	<10	NS	<3.0	<0.20	18.9	<10	<10	NS	NS	<20
	1/22/2009	NS	**5.5**	NS	NS	<3.0	<10	18.0	NS	<3.0	<0.20	13.4	<10	<10	NS	NS	<20
	4/29/2009	NS	**4.6**	NS	NS	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	NS	NS	<20
	7/29/2009	<6.0	**5.8**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	NS	<10	NS	NS
	10/27/2009	<6.0	**7.4**	NS	<1.0	<3.0	<10	22.2	NS	4.2	<0.20	<10	<10	<10	<10	NS	47.4
	1/27/2010	<6.0	**4.2**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	<20
	4/5/2010	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	<20
	7/22/2010	<6.0	**11.6**	<200	<1.0	<3.0	<10	NS	<50	<3.0	<0.20	<10	<10	NS	NS	<50	NS
	10/25/2010	<6.0	**8.7**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	<20
	1/19/2011	<6.0	**4.0**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	<20
	4/20/2011	<6.0	**6.4**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	<20
	7/20/2011	<6.0	**16.3**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<2.0	NS	<20
	10/21/2011	<6.0	**19.7**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<2.0	NS	<20
	1/19/2012	<6.0	**12.4**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<2.0	NS	<20
	4/24/2012	<6.0	**3.0**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<2.0	NS	<20

All data is reported in ug/kg unless otherwise noted
ND- Not Detected
NA- Not Analyzed/ Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value

Table 18
Historic Groundwater Sampling Table - Metals
No. 1 Landfarm (Area of Concern #3)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

		Metals															
Sample ID	**Date**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium**	**Copper**	**Cobalt**	**Lead**	**Mercury**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
NJDEP GWQS		**6**	**3**	**6,000**	**1**	**4**	**70**	**1,300**	**100**	**5**	**2**	**100**	**40**	**40**	**2**	**N/A**	**2,000**
L1-3	1/21/2005	NS	**26.3**	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<5.0	<10	NS	NS	31.5
	5/4/2005	NS	**55.5**	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<5.0	<10	NS	NS	<20
	7/22/2005	6.0	**28.1**	NS	<5.0	<4.0	<10	<25	NS	<3.0	<0.20	<40	<5.0	NS	<10	NS	NS
	10/28/2005	NS	**168**	NS	NS	<4.0	<10	26.8	NS	**9.5**	<0.20	<40	<5.0	<10	NS	NS	88.9
	1/20/2006	NS	**134**	NS	NS	<4.0	<10	<25	NS	**8**	<0.20	<40	<5.0	<10	NS	NS	65.7
	4/28/2006	NS	**48.6**	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	<20
	7/21/2006	<6.0	**32**	NS	<1.0	<4.0	<10	<50	NS	<3.0	<0.20	<40	<10	NS	<10	NS	NS
	10/23/2006	NS	**50**	NS	NS	<4.0	<10	<25	NS	**7.1**	<0.20	<40	<10	<10	NS	NS	39.5
	1/26/2007	NS	**29.8**	NS	NS	<4.0	15.5	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	<20
	4/20/2007	NS	**19.1**	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	<20
	7/27/2007	<6.0	**38.2**	NS	<1.0	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	NS	<10	NS	NS
	10/30/2007	NS	**34.7**	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	21.9
	1/11/2008	NS	**64.2**	NS	NS	<4.0	<10	<25	NS	4.4	<0.20	<40	<10	<10	NS	NS	36.3
	4/17/2008	NS	**18.1**	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	<20
	7/22/2008	<6.0	**40.9**	NS	<1.0	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	NS	<2.0	NS	NS
	10/29/2008	NS	**84.8**	NS	NS	<3.0	<10	10	NS	**7.1**	<0.20	15.9	<10	<10	NS	NS	88.3
	1/22/2009	NS	**44.9**	NS	NS	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	NS	NS	<20
	4/29/2009	NS	**25.1**	NS	NS	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	NS	NS	<20
	7/29/2009	<6.0	**49.2**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	NS	<10	NS	NS
	10/26/2009	<6.0	**40.2**	NS	<1.0	3.3	<10	<10	NS	<3.0	<0.20	15.1	<10	<10	<10	NS	23.9
	1/27/2010	<6.0	**19.6**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	<20
	4/5/2010	<6.0	**31.7**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<5	NS	<20
	7/22/2010	<6.0	**28.5**	260	<1.0	<3.0	<10	NS	<50	<3.0	<0.20	<10	<10	NS	NS	<50	NS
	10/25/2010	<6.0	**27.9**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<5	NS	<20
	1/19/2011	Could not locate due to snow.															
	4/20/2011	<6.0	**15.2**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<5.0	NS	<20
	7/20/2011	<6.0	**34.0**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<2.0	NS	<20
	10/21/2011	<6.0	**29.3**	NS	<1.0	<3.0	<10	<10	NS	<3.0	0.39	<10	<10	<10	<2.0	NS	<20
	1/19/2012	<6.0	**63.3**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<2.0	NS	28.0
	4/24/2012	<6.0	**27.0**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<2.0	NS	<20
L1-4	1/21/2005	NS	<5.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	8.2	<10	NS	NS	<20
	5/4/2005	NS	<5.0	NS	NS	<4.0	<10	<25	NS	4.2	<0.20	<40	<5.0	<10	NS	NS	<20
	7/22/2005	**6.4**	<5.0	NS	<5.0	<4.0	<10	<25	NS	<3.0	<0.20	<40	7	NS	<10	NS	NS
	10/28/2005	NS	<5.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	5.9	<10	NS	NS	<20
	1/20/2006	NS	<5.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	7.7	<10	NS	NS	<20
	4/28/2006	NS	<8.0	NS	NS	<4.0	<10	<25	NS	**7.9**	<0.20	<40	<10	<10	NS	NS	23.5
	7/21/2006	<6.0	<8.0	NS	<1.0	<4.0	<10	<50	NS	3.1	<0.20	<40	<10	NS	<10	NS	NS
	10/23/2006	NS	<8.0	NS	NS	<4.0	<10	<25	NS	4.2	<0.20	<40	<10	<10	NS	NS	<20
	1/26/2007	NS	<8.0	NS	NS	<4.0	13.2	<25	NS	4.7	<0.20	<40	<10	<10	NS	NS	<20
	4/20/2007	NS	<8.0	NS	NS	<4.0	<10	<25	NS	4.1	<0.20	<40	<10	<10	NS	NS	<20
	7/27/2007	<6.0	<6.0	NS	<1.0	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	NS	<10	NS	NS
	10/30/2007	NS	<8.0	NS	NS	<4.0	<10	37.7	NS	**17**	<0.20	<40	<10	<10	NS	NS	36.2
	1/11/2008	NS	**8.1**	NS	NS	<4.0	17.6	82.3	NS	**58.8**	0.26	<40	<10	<10	NS	NS	98.5
	4/17/2008	NS	<8.0	NS	NS	<4.0	<10	37.2	NS	**15.3**	<0.20	<40	<10	<10	NS	NS	28.4
	7/22/2008	**6.5**	**8.4**	NS	<1.0	<4..0	<10	<25	NS	**11.4**	<0.20	<40	<10	NS	<2.0	NS	NS
	10/29/2008	NS	**18.7**	NS	NS	<3.0	<10	37.2	NS	**10.4**	0.21	<10	<10	<10	NS	NS	50.6
	1/22/2009	NS	**16.6**	NS	NS	<3.0	<10	34.4	NS	**17.9**	0.23	<10	<10	<10	NS	NS	27.2
	4/29/2009	NS	**5.2**	NS	NS	<3.0	<10	35.8	NS	**11.9**	<0.20	<10	<10	<10	NS	NS	<20
	7/29/2009	<6.0	**5.6**	NS	<1.0	<3.0	<10	44.9	NS	**7.3**	<0.20	<10	<10	NS	<10	NS	NS
	10/26/2009	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	<20
	1/27/2010	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	<20
	4/5/2010	<6.0	<3.0	NS	<1.0	<3.0	<10	19.6	NS	3.3	<0.20	<10	<10	<10	<10	NS	<20
	7/22/2010	<6.0	<3.0	<200	<1.0	<3.0	<10	NS	<50	<3.0	<0.20	<10	<10	NS	NS	<50	NS
	10/25/2010	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	<20
	1/19/2011	Could not locate due to snow.															
	4/20/2011	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	3.1	<0.20	<10	<10	<10	<10	NS	<20
	7/20/2011	<6.0	**4.9**	NS	<1.0	<3.0	<10	<10	NS	3.4	<0.20	<10	<10	<10	<2.0	NS	<20
	10/21/2011	<6.0	**3.3**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<2.0	NS	<20
	1/19/2012	<6.0	**73.3**	NS	<1.0	<3.0	<10	50.8	NS	**19.2**	0.55	<10	<10	<10	<2.0	NS	33.9
	4/24/2012	<6.0	**12.7**	NS	<1.0	<3.0	<10	<10	NS	4.5	0.21	<10	<10	<10	<2.0	NS	<20

All data is reported in ug/kg unless otherwise noted
ND- Not Detected
NA- Not Analyzed/ Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value

Table 18
Historic Groundwater Sampling Table - Metals
No. 1 Landfarm (Area of Concern #3)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

		Metals															
Sample ID	**Date**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium**	**Copper**	**Cobalt**	**Lead**	**Mercury**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
NJDEP GWQS		**6**	**3**	**6,000**	**1**	**4**	**70**	**1,300**	**100**	**5**	**2**	**100**	**40**	**40**	**2**	**N/A**	**2,000**
BG-2	1/21/2005	NS	<5.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<5.0	<10	NS	NS	<20
	4/28/2005	NS	**8.3**	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<5.0	<10	NS	NS	23.9
	7/22/2005	**6.9**	**5.6**	NS	<5.0	<4.0	<10	<25	NS	<3.0	<0.20	<40	<5.0	NS	<10	NS	NS
	10/28/2005	NS	**7**	NS	NS	<4.0	<10	<25	NS	4.0	<0.20	<40	<5.0	<10	NS	NS	<20
	1/20/2006	NS	<5.0	NS	NS	<4.0	<10	<25	NS	3.6	<0.20	<40	<5.0	<10	NS	NS	<20
	4/28/2006	NS	<8.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	<20
	7/21/2006	<6.0	<8.0	NS	<1.0	<4.0	<10	<50	NS	<3.0	<0.20	<40	<10	NS	<10	NS	NS
	10/23/2006	NS	<8.0	NS	NS	<4.0	<10	<25	NS	4.6	<0.20	<40	<10	<10	NS	NS	76.9
	1/26/2007	NS	<8.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	<20
	4/20/2007	NS	<8.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	<20
	7/27/2007	<6.0	<6.0	NS	<1.0	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	NS	<10	NS	NS
	10/30/2007	NS	<8.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	<20
	1/11/2008	NS	<8.0	NS	NS	<4.0	<10	<25	NS	3.4	<0.20	<40	<10	<10	NS	NS	<20
	4/17/2008	NS	<8.0	NS	NS	<4.0	<10	<25	NS	<3.0	<0.20	<40	<10	<10	NS	NS	<20
	7/22/2008	<6.0	**7.5**	NS	<1.0	<4.0	<10	<50	NS	<3.0	<0.20	<40	<10	NS	<2.0	NS	NS
	10/29/2008	NS	**5.6**	NS	NS	<3.0	<10	116	NS	**22.4**	<0.20	13.5	<10	<10	NS	NS	1380
	1/22/2009	NS	**3.8**	NS	NS	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	NS	NS	<20
	4/29/2009	NS	**3.7**	NS	NS	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	NS	NS	<20
	7/29/2009	<6.0	**6.1**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	NS	<10	NS	NS
	10/26/2009	<6.0	**3.5**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	<20
	1/27/2010	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	<20
	4/5/2010	<6.0	**7.4**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	<20
	7/22/2010	<6.0	<3.0	<200	<1.0	<3.0	<10	NS	<50	<3.0	<0.20	<10	<10	NS	NS	<50	NS
	10/25/2010	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	<20
	1/19/2011	<6.0	**3.1**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	<20
	4/20/2011	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<10	NS	<20
	7/20/2011	<6.0	**4.6**	<1.0	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<2.0	NS	<20
	10/21/2011	<6.0	**5.7**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<2.0	NS	<20
	1/19/2012	<6.0	<3.0	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<2.0	NS	<20
	4/24/2012	<6.0	**5.1**	NS	<1.0	<3.0	<10	<10	NS	<3.0	<0.20	<10	<10	<10	<2.0	NS	<20

All data is reported in ug/kg unless otherwise noted
ND- Not Detected
NA- Not Analyzed/ Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value

Table 19
Historic Groundwater Sampling Table - Base Neutrals
No. 1 Landfarm (Area of Concern #3)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

		General Chemistry			Base Neutrals											
Sample ID	Date	Cyanide (mg/l)	Phenols (mg/l)	pH	Acenaphthene	Anthracene	Benzo(a)anthracene	Chrysene	1,4-Dichlorobenzene	Di-n-butyl phthalate	Di-n-octyl phthalate	bis(2-Ethylhexyl)phthalate	Fluoranthene	Phenanthrene	Pyrene	Total TIC, Semi-Volatile
NJDEP GWQS		**0.1**	**2,000**	**6.5-8.5**	**400**	**2,000**	**0.1**	**5**	**75**	**700**	**100**	**3**	**300**	**NA**	**200**	**500**
L1-1	1/21/2005	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	36
	4/28/2005	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/22/2005	<0.010	NS	NS	NS	ND	ND	ND	NS	4.5	ND	1.1	ND	NS	ND	ND
	10/28/2005	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	2.9	ND	ND	ND	4.2
	1/20/2006	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/28/2006	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	27.5
	7/21/2006	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	ND	ND	NS	ND	ND
	10/23/2006	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/26/2007	0.01	NS	NS	ND	ND	ND	ND	ND	ND	ND	2.6	ND	ND	ND	70
	4/20/2007	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	2.7	ND	ND	ND	8.8
	7/27/2007	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	ND	ND	NS	ND	ND
	10/30/2007	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	2.3	ND	ND	ND	90.6
	1/11/2008	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	**15.8**	ND	ND	ND	200.9
	4/17/2008	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	29.1
	7/22/2008	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	**3.7**	ND	NS	ND	ND
	10/29/2008	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND
	1/22/2009	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND
	4/29/2009	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	2.3	ND	ND	ND	4.8
	7/29/2009	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	1.3	ND	NS	ND	ND
	10/26/2009	0.016	<0.20	NS	ND	0.44 J	0.59 J	0.53 J	ND	ND	ND	ND	1.6	1.2	1.1	ND
	1/27/2010	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/5/2010	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	40.6
	7/22/2010	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/2010	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	72
	1/19/2011	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	27
	4/20/2011	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.6
	7/20/2011	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.2(1)J
	10/21/2011	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	1.7 J	ND	ND	ND	ND
	1/19/2012	<0.010	<0.20	**5.23**	ND	ND	ND	ND	ND	ND	ND	**4.8**	ND	ND	ND	ND
	4/24/2012	NS	ND *	**5.62**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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NA- Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value
* - Phenol as reported by EPA method 625

Table 19
Historic Groundwater Sampling Table - Base Neutrals
No. 1 Landfarm (Area of Concern #3)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

		General Chemistry			Base Neutrals											
Sample ID	Date	Cyanide (mg/l)	Phenols (mg/l)	pH	Acenaphthene	Anthracene	Benzo(a)anthracene	Chrysene	1,4-Dichlorobenzene	Di-n-butyl phthalate	Di-n-octyl phthalate	bis(2-Ethylhexyl)phthalate	Fluoranthene	Phenanthrene	Pyrene	Total TIC, Semi-Volatile
NJDEP GWQS		**0.1**	**2,000**	**6.5-8.5**	**400**	**2,000**	**0.1**	**5**	**75**	**700**	**100**	**3**	**300**	**NA**	**200**	**500**
L1-2	1/21/2005	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	48
	4/28/2005	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	2.3	ND	ND	ND	19
	7/22/2005	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	ND	ND	NS	ND	ND
	10/28/2005	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/20/2006	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.4
	4/28/2006	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/21/2006	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	1.2	ND	NS	ND	ND
	10/23/2006	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/26/2007	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	53
	4/20/2007	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.1
	7/27/2007	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	ND	ND	NS	ND	ND
	10/30/2007	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	1.3	ND	ND	ND	101.2
	1/11/2008	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	112.8
	4/17/2008	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	16.4
	7/22/2008	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	**3.1**	ND	NS	ND	ND
	10/29/2008	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	1.4	ND	ND	ND	ND
	1/22/2009	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/29/2009	<0.010	NS	NS	ND	ND	ND	ND	0.78	ND	ND	ND	ND	ND	ND	123.1
	7/29/2009	<0.010	NS	NS	NS	ND	ND	ND	0.8	ND	ND	ND	ND	NS	ND	ND
	10/27/2009	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/2010	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/5/2010	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	83.9
	7/22/2010	NS	NS	NS	ND	ND	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND
	10/25/2010	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14.0
	1/19/2011	0.04	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/20/2011	<0.010	<0.20	NS	ND	ND	ND	ND	0.63	ND	ND	ND	ND	ND	ND	18.0
	7/20/2011	<0.010	<0.20	NS	ND	ND	ND	ND	1.0 J	ND	ND	ND	ND	ND	ND	18.6(2)J
	10/21/2011	<0.010	<0.20	NS	ND	ND	ND	ND	1.3 J	ND	ND	ND	ND	ND	ND	ND
	1/19/2012	<0.010	<0.20	**6.4**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11.76(1) J
	4/24/2012	NS	<0.20	**6.35**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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NS- Not Sampled
NR- Not Reported
J- Estimate Value
* - Phenol as reported by EPA method 625

Table 19
Historic Groundwater Sampling Table - Base Neutrals
No. 1 Landfarm (Area of Concern #3)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

		General Chemistry			Base Neutrals											
Sample ID	Date	Cyanide (mg/l)	Phenols (mg/l)	pH	Acenaphthene	Anthracene	Benzo(a)anthracene	Chrysene	1,4-Dichlorobenzene	Di-n-butyl phthalate	Di-n-octyl phthalate	bis(2-Ethylhexyl)phthalate	Fluoranthene	Phenanthrene	Pyrene	Total TIC, Semi-Volatile
NJDEP GWQS		**0.1**	**2,000**	**6.5-8.5**	**400**	**2,000**	**0.1**	**5**	**75**	**700**	**100**	**3**	**300**	**NA**	**200**	**500**
L1-3	1/21/2005	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	2.1	ND	ND	ND	21.9
	5/4/2005	0.082	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/22/2005	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	1.7	ND	NS	ND	ND
	10/28/2005	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/20/2006	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	1.7	ND	ND	ND	ND
	4/28/2006	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	2.4	ND	ND	ND	ND
	7/21/2006	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	2.2	ND	NS	ND	ND
	10/23/2006	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	**16.6**	ND	ND	ND	19.0
	1/26/2007	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	2.1	ND	ND	0.6	31.0
	4/20/2007	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	**3.8**	ND	ND	ND	15.0
	7/27/2007	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	**5.2**	ND	NS	ND	ND
	10/30/2007	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	**5.2**	ND	ND	ND	43.2
	1/11/2008	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	**6.5**	ND	ND	ND	34.4
	4/17/2008	<0.010	NS	NS	0.5	ND	ND	ND	ND	ND	ND	**7.2**	ND	ND	ND	97.2
	7/22/2008	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	**4.3**	ND	NS	ND	ND
	10/29/2008	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/22/2009	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	**3.1**	ND	ND	ND	4.7
	4/29/2009	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	1.5	ND	ND	ND	ND
	7/29/2009	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	2.2	ND	NS	ND	ND
	10/26/2009	0.019	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/2010	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/5/2010	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	46
	7/22/2010	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/2010	<0.010	<0.20	NS	0.47	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/19/2011	Could not locate due to snow.														
	4/20/2011	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	24.4
	7/20/2011	<0.010	<0.20	NS	0.56 J	ND	ND	ND	ND	ND	ND	1.8 J	ND	ND	ND	ND
	10/21/2011	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/19/2012	<0.010	<0.20	6.75	ND	ND	ND	ND	ND	ND	ND	**10.7**	ND	ND	ND	ND
	4/24/2012	NS	<0.20	6.73	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

All data is reported in ug/l unless otherwise noted
ND- Not Detected
NA- Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value
* - Phenol as reported by EPA method 625

Table 19
Historic Groundwater Sampling Table - Base Neutrals
No. 1 Landfarm (Area of Concern #3)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

		General Chemistry			Base Neutrals											
Sample ID	Date	Cyanide (mg/l)	Phenols (mg/l)	pH	Acenaphthene	Anthracene	Benzo(a)anthracene	Chrysene	1,4-Dichlorobenzene	Di-n-butyl phthalate	Di-n-octyl phthalate	bis(2-Ethylhexyl)phthalate	Fluoranthene	Phenanthrene	Pyrene	Total TIC, Semi-Volatile
NJDEP GWQS		**0.1**	**2,000**	**6.5-8.5**	**400**	**2,000**	**0.1**	**5**	**75**	**700**	**100**	**3**	**300**	**NA**	**200**	**500**
L1-4	1/21/2005	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	**4.8**	ND	ND	ND	132.3
	5/4/2005	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	310
	7/22/2005	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	ND	ND	NS	ND	ND
	10/28/2005	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND
	1/20/2006	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/28/2006	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	2.0	ND	ND	ND	50.0
	7/21/2006	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	2.5	ND	NS	ND	ND
	10/23/2006	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	16.9
	1/26/2007	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	1.0	ND	ND	ND	44.6
	4/20/2007	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	**3.4**	ND	ND	ND	45.9
	7/27/2007	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	ND	ND	NS	ND	ND
	10/30/2007	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	247.2
	1/11/2008	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	1.9	ND	ND	ND	136.9
	4/17/2008	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/22/2008	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	ND	ND	NS	ND	ND
	10/29/2008	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	16
	1/22/2009	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	107.3
	4/29/2009	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.6
	7/29/2009	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	**6.5**	ND	NS	ND	ND
	10/26/2009	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/2010	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/5/2010	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/22/2010	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/2010	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/19/2011	Could not locate due to snow.														
	4/20/2011	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	15.0
	7/20/2011	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	**3.0**	ND	ND	ND	ND
	10/21/2011	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.1(1)J
	1/19/2012	<0.010	<0.20	6.68	ND	ND	ND	ND	ND	ND	ND	**14.2**	ND	ND	ND	19.7(3)J
	4/24/2012	NS	<0.20	7.05	ND	ND	ND	ND	ND	ND	ND	1.9 J	ND	ND	ND	ND

All data is reported in ug/l unless otherwise noted
ND- Not Detected
NA- Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value
* - Phenol as reported by EPA method 625

Table 19
Historic Groundwater Sampling Table - Base Neutrals
No. 1 Landfarm (Area of Concern #3)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

		General Chemistry			Base Neutrals											
Sample ID	Date	Cyanide (mg/l)	Phenols (mg/l)	pH	Acenaphthene	Anthracene	Benzo(a)anthracene	Chrysene	1,4-Dichlorobenzene	Di-n-butyl phthalate	Di-n-octyl phthalate	bis(2-Ethylhexyl)phthalate	Fluoranthene	Phenanthrene	Pyrene	Total TIC, Semi-Volatile
NJDEP GWQS		**0.1**	**2,000**	**6.5-8.5**	**400**	**2,000**	**0.1**	**5**	**75**	**700**	**100**	**3**	**300**	**NA**	**200**	**500**
BG-2	1/21/2005	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	1.1	ND	ND	ND	61
	4/28/2005	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	1.3	ND	ND	ND	19
	7/22/2005	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	ND	ND	NS	ND	ND
	10/28/2005	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	1.7	ND	ND	ND	ND
	1/20/2006	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	2.5	ND	ND	ND	ND
	4/28/2006	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14
	7/21/2006	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	ND	ND	NS	ND	ND
	10/23/2006	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	1.8	ND	ND	ND	25
	1/26/2007	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	1.4	ND	ND	ND	38
	4/20/2007	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	**3.2**	ND	ND	ND	ND
	7/27/2007	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	**5.9**	ND	NS	ND	ND
	10/30/2007	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	**3.1**	ND	ND	ND	62.6
	1/11/2008	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	**5.2**	ND	ND	ND	45
	4/17/2008	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.1
	7/22/2008	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	ND	**3.5**	ND	NS	ND	ND
	10/29/2008	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	**3**	ND	ND	ND	11
	1/22/2009	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/29/2009	<0.010	NS	NS	ND	ND	ND	ND	ND	ND	ND	1.3	ND	ND	ND	4.5
	7/29/2009	<0.010	NS	NS	NS	ND	ND	ND	NS	ND	1.6	1.4	ND	NS	ND	ND
	10/26/2009	0.018	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/27/2010	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/5/2010	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/22/2010	NS	NS	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/25/2010	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.1
	1/19/2011	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	16
	4/20/2011	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/20/2011	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/21/2011	<0.010	<0.20	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	1/19/2012	<0.010	<0.20	**5.37**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/24/2012	NS	<0.20	**6.46**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

All data is reported in ug/l unless otherwise noted
ND- Not Detected
NA- Not Applicable
NS- Not Sampled
NR- Not Reported
J- Estimate Value
* - Phenol as reported by EPA method 625

Table 20
Historic Leachate Sampling Table
No. 1 Landfarm (Area of Concern #3)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

		Volatiles						Base Neutrals					
Sample ID	**Date**	**Benzene**	**Ethylbenzene**	**Toluene**	**Xylene (total)**	**Methyl Tert Butyl Ether**	**Tert Butyl Alcohol**	**Anthracene**	**Benzenethiol**	**bis(2-Ethylhexyl)phthalate**	**Phenanthrene**	**Pyrene**	**Pyridine**
NJDEP GWQS		**1**	**700**	**600**	**1,000**	**70**	**100**	**2,000**	**NA**	**3**	**NA**	**200**	**NA**
L1 Leachate	5/4/2005	ND	ND	ND	ND	NS	NS	ND	ND	ND	ND	ND	ND
	7/22/2005	ND	ND	ND	ND	NS	NS	ND	ND	ND	ND	ND	ND
	10/28/2005	ND	ND	ND	ND	NS	NS	ND	ND	ND	ND	ND	ND
	4/28/2006	ND	ND	ND	ND	16.9	ND	ND	ND	ND	ND	ND	ND
	5/11/2006	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	ND
	7/21/2006	ND	ND	ND	ND	20	ND	ND	ND	ND	ND	ND	ND
	10/23/2006	ND	ND	ND	ND	14.6	10	ND	ND	ND	ND	ND	ND
	4/20/2007	ND	ND	ND	ND	15	ND	ND	ND	1.7	ND	ND	ND
	7/27/2007	ND	ND	ND	ND	13.4	ND	ND	ND	ND	ND	ND	ND
	10/30/2007	ND	ND	ND	ND	11.3	ND	ND	ND	ND	ND	ND	ND
	4/17/2008	ND	ND	ND	ND	11.2	ND	ND	0.73	ND	ND	ND	ND
	7/22/2008	ND	ND	ND	ND	19.8	ND	ND	ND	ND	0.42	ND	ND
	10/29/2008	ND	ND	ND	ND	10	ND	ND	ND	ND	ND	ND	ND
	4/29/2009	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/29/2009	ND	ND	ND	ND	7.5	ND	ND	ND	**6.8**	ND	ND	ND
	10/27/2009	ND	ND	ND	ND	20.1	9.9	ND	ND	ND	0.44	ND	ND
	4/7/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/22/2010	ND	ND	ND	ND	ND	ND	0.68	ND	ND	ND	0.41	1.2
	10/25/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/20/2011	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	7/21/2011	ND	ND	ND	ND	NR	NR	NR	ND	**5.1**	ND	ND	ND
	10/21/2011	ND	ND	ND	ND	NR	NR	ND	ND	ND	ND	ND	ND
	4/25/2012	ND	ND	ND	ND	ND	ND	ND	ND	1.3 J	0.49 J	ND	ND

All Data in ug/L unless otherwise noted.
ND - Not Detected
NA - Not Applicable
NS - Not Sampled

Table 20
Historic Leachate Sampling Table
No. 1 Landfarm (Area of Concern #3)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

		Metals											
Sample ID	**Date**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium**	**Cobalt**	**Lead**	**Mercury**	**Nickel**	**Selenium**	**Vanadium**
NJDEP GWQS		**6**	**3**	**6,000**	**1**	**4**	**70**	**100**	**5**	**2**	**100**	**40**	**60**
L1 Leachate	5/4/2005	<5.0	**5.6**	<200	<5.0	<4.0	<10	<50	<3.0	<0.20	**246**	8.8	NS
	7/22/2005	<5.0	**6.4**	<200	<5.0	<4.0	<10	<50	<3.0	<0.20	**265**	6.5	NS
	10/28/2005	<5.0	<5.0	<200	<5.0	<4.0	<10	<50	<3.0	<0.20	**107**	6.9	NS
	4/28/2006	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	5/11/2006	<6.0	<8.0	<200	<1.0	<4.0	<10	<50	<3.0	<0.20	**163**	<10	NS
	7/21/2006	<6.0	<8.0	<200	<1.0	<4.0	<10	<50	<3.0	<0.20	**179**	<10	NS
	10/23/2006	<6.0	<8.0	<200	<1.0	<4.0	<10	<50	<3.0	<0.20	**174**	10.6	NS
	4/20/2007	<6.0	**9.3**	<200	<1.0	<4.0	<10	<50	4.2	<0.20	**200**	<10	NS
	7/27/2007	<6.0	<8.0	<200	<1.0	<4.0	<10	<50	<3.0	<0.20	**137**	<10	NS
	10/30/2007	<6.0	<8.0	<200	<1.0	<4.0	<10	<50	<3.0	<0.20	**103**	<10	NS
	4/17/2008	<6.0	**7**	<200	<1.0	<4.0	11.4	<50	<3.0	<0.20	**163**	<10	NS
	7/22/2008	<6.0	**11.1**	<200	<1.0	<4.0	16.8	<50	<3.0	<0.20	**170**	20.4	NS
	10/29/2008	<6.0	**10.4**	<200	<1.0	**4.2**	15.5	<50	<3.0	<0.20	**168**	<10	NS
	4/29/2009	<6.0	<3.0	<200	<1.0	<3.0	<10	<50	<3.0	<0.20	**195**	<10	NS
	7/29/2009	<6.0	**6.8**	<200	<1.0	<3.0	<10	<50	<3.0	<0.20	**116**	<10	NS
	10/27/2009	<6.0	<8.0	<200	<1.0	<3.0	11.3	<50	<3.0	<0.20	**126**	<10	<50
	4/7/2010	<6.0	<8.0	<200	<1.0	<3.0	<10	<50	<3.0	<0.20	**122**	<10	<50
	7/22/2010	<6.0	**7**	<200	<1.0	<3.0	10.1	<50	<3.0	<0.20	**106**	<10	<50
	10/25/2010	<6.0	**11.7**	<200	<1.0	<3.0	10.5	<50	<3.0	<0.20	**93.5**	10.8	<50
	4/20/2011	<6.0	**4.3**	<200	<1.0	<3.0	<10	<50	<3.0	<0.20	**866**	<10	<50
	7/21/2011	<6.0	**5.9**	<200	<1.0	<3.0	<10	<50	<3.0	<0.20	**351**	<10	<50
	10/21/2011	<6.0	**8.7**	<200	<1.0	<3.0	<10	<50	<3.0	<0.20	**358**	<10	<50
	4/25/2012	<6.0	**10.2**	<200	<1.0	<3.0	<10	<50	<15	<0.20	**451**	<10	<50

All Data in ug/L unless otherwise noted.
ND - Not Detected
NA - Not Applicable
NS - Not Sampled

Table 21
Historic Lysimeter Sampling Table
No. 1 Landfarm (Area of Concern #3)
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

		Volatiles								General Chemistry					Metals									
Sample ID	**Date**	**Benzene**	**Carbon disulfide**	**Chlorobenzene**	**Ethylbenzene**	**Methyl Tert Butyl Ether**	**Tert Butyl Alcohol**	**Toluene**	**Xylene (total)**	**Phenol**	**bis(2-Ethylhexyl)phthalate**	**3&4-Methylphenol**	**pH (su)**	**Sulfide Reactivity (mg/l)**	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium**	**Cobalt**	**Lead**	**Mercury**	**Nickel**	**Selenium**	**Vanadium**
NJDEP GWQS		**1**	**700**	**50**	**700**	**70**	**100**	**600**	**1,000**	**2,000**	**3**	**NA**	**6.5 - 8.5**	**NA**	**6**	**3**	**6,000**	**1**	**4**	**70**	**NA**	**5**	**2**	**100**	**40**	**60**
BG-LY1	5/4/2005	ND	ND	ND	ND	NS	NS	ND	ND	NS	NS	NS	**5.88**	60	<5.0	<5.0	<200	<5.0	<4.0	<10	<50	<3.0	<0.20	67.2	<5.0	NS
	7/22/2005	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	ND	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/28/2005	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	ND	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	1/20/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**5.9**	<50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	4/28/2006	ND	ND	ND	ND	0.5	ND	ND	ND	NS	NS	NS	6.36	NS	<6.0	<8.0	<200	<1.0	<4.0	<10	<50	<3.0	<0.20	69.1	NS	NS
	7/21/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.8	ND	**4.7**	NS	<6.0	<8.0	<200	<1.0	<4.0	<10	<50	<3.0	<0.20	101	<10	<50
	10/23/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**5.17**	NS	<6.0	<8.0	<200	<1.0	<4.0	<10	<50	<3.0	<0.20	106	NS	<50
	1/26/2007	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	6.86	NS	<6.0	<8.0	<200	<1.0	<4.0	<10	<50	<3.0	<0.20	<40	NS	NS
	4/20/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.6	ND	**6.11**	NS	<6.0	<8.0	<200	<1.0	<4.0	<10	<50	<3.0	<0.20	55.7	NS	NS
	7/27/2007	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	**5.48**	<100	<6.0	<8.0	<200	<1.0	<4.0	<10	<50	<3.0	<0.20	61.2	<10	<50
	10/30/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/11/2008	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	6.62	NS	<6.0	<8.0	<200	<1.0	<4.0	<10	<50	<3.0	<0.20	<40	<10	<50
	4/17/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.5	ND	6.94	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/22/2008	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NS	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/29/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**5.74**	NS	<6.0	<3.0	<200	<1.0	<3.0	<10	<50	<3.0	<0.20	**128**	NS	NS
	1/22/2009	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	<100	<6.0	<3.0	<200	<1.0	<3.0	<10	<50	<3.0	<0.20	54.6	NS	NS
	4/29/2009	ND	0.76	ND	ND	ND	ND	ND	ND	NS	NS	ND	**5.96**	NS	<6.0	<3.0	<200	<1.0	<3.0	<10	<50	<3.0	<0.20	89.5	NS	NS
	7/29/2009	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	6.58	<100	<6.0	<3.0	<200	<1.0	<3.0	<10	<50	<3.0	<0.20	**107**	<10	<50
	7/22/2010	ND	ND	0.76	ND	ND	ND	ND	ND	ND	ND	ND	6.5	<100	<6.0	<3.0	<200	<1.0	<3.0	<10	<50	4.8	<0.20	<10	<10	<50
	7/20/2011	ND	ND	ND	ND	NR	NR	ND	ND	ND	1.4J	ND	NA	<100	**<30**	**56.5**	<1,000	**<5.0**	**<15**	**113**	<250	**331**	1.9	204	<50	<250
BG-LY2	5/4/2005	ND	ND	ND	ND	NS	NS	ND	ND	NS	NS	NS	NS	NS	<5.0	<5.0	<200	<5.0	<4.0	<10	<50	**9.6**	<0.20	<40	<5.0	NS
	7/22/2005	ND	ND	ND	ND	NS	NS	ND	ND	2.2	**7.7**	ND	6.55	<50	<5.0	**8.4**	<200	<5.0	<4.0	<10	<50	**11.8**	<0.20	<40	<5.0	<50
	10/28/2005	ND	ND	ND	ND	NS	NS	ND	ND	ND	1.4	ND	**5.62**	<50	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/20/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	**12**	ND	**5.79**	<50	<5.0	<5.0	<200	<1.0	<4.0	<10	<50	**13**	<0.20	<40	NS	NS
	4/28/2006	ND	ND	ND	ND	0.71	ND	ND	ND	NS	NS	NS	6.6	NS	<6.0	<8.0	<200	<1.0	<4.0	<10	<50	**6.4**	<0.20	<40	NS	NS
	7/21/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	**837**	ND	**4.33**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/23/2006	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.69	<100	<6.0	<8.0	<200	<1.0	<4.0	<10	<50	**21**	<0.20	<40	NS	<50
	1/26/2007	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	6.59	NS	<6.0	<8.0	<200	<1.0	<4.0	<10	<50	<3.0	<0.20	<40	NS	NS
	4/20/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.6	ND	**6.03**	NS	<6.0	<8.0	<200	<1.0	<4.0	<10	<50	**5.3**	0.31	<40	NS	NS
	7/27/2007	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	6.73	<100	<6.0	**13.2**	<200	<1.0	<4.0	<10	<50	**23.2**	<0.20	<40	<10	<50
	10/30/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.9	ND	**6.33**	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	1/11/2008	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	**6.48**	<100	<6.0	**<8.0**	<200	<1.0	<4.0	<10	<50	<3.0	<0.20	<40	<10	<50
	4/17/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.5	ND	6.84	NS	<6.0	<3.0	<200	<1.0	<4.0	<10	<50	**16.3**	<0.20	<40	NS	NS
	7/22/2008	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	NS	<6.0	<3.0	<200	<1.0	<4.0	<10	<50	**5**	<0.20	<40	<10	<50
	10/29/2008	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**6.36**	NS	<6.0	<3.0	<200	<1.0	<3.0	<10	<50	**5.9**	<0.20	<10	NS	NS
	1/22/2009	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	NS	<100	<6.0	<3.0	<200	<1.0	<3.0	<10	<50	3.5	<0.20	<10	NS	NS
	4/29/2009	ND	0.49	ND	ND	ND	ND	ND	ND	ND	1.8	ND	6.71	<100	<6.0	<3.0	<200	<1.0	<3.0	<10	<50	4	<0.20	<10	NS	NS
	7/29/2009	ND	ND	ND	ND	ND	ND	ND	ND	NS	NS	NS	6.58	<100	<6.0	<3.0	<200	<1.0	<3.0	<10	<50	**6.6**	<0.20	<10	<10	<50
	7/22/2010	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	16.7	6.61	<100	<6.0	<3.0	<200	<1.0	<3.0	<10	<50	**12.5**	<0.20	<10	<10	<50
	7/20/2011	ND	ND	ND	ND	NR	NR	ND	ND	ND	**17.0**	ND	NA	<100	<6.0	**16.4**	<200	<1.0	<3.0	27.2	<50	**42.9**	0.48	22.5	<10	<50

All Data in ug/L unless otherwise noted.
ND - Not Detected
NA - Not Applicable
NS - Not Sampled
NR - Not Reported

Table 22
Soil Sampling Summary
No. 1 Landfarm
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

		Volatiles								Metals											
Sample Location	Sample Date	Benzene	2-Butanone (MEK)	Carbon disulfide	Ethylbenzene	MTBE	TBA	Toluene	Xylene (total)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Lead	Mercury	Nickel	Selenium	Vanadium
IGWSRS		**0.005**	**0.6**	**4**	**8**	**0.2**	**0.2**	**4**	**12**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
RDCSRS		**2**	**3,100**	**7,800**	**7,800**	**110**	**1,400**	**6,300**	**12,000**	**31**	**19**	**16,000**	**16**	**78**	**NA**	**1,600**	**400**	**23**	**1,600**	**390**	**78**
NRDCSRS		**5**	**44,000**	**110,000**	**110,000**	**320**	**11,000**	**91,000**	**170,000**	**450**	**19**	**59,000**	**140**	**78**	**NA**	**590**	**800**	**65**	**23,000**	**5,700**	**1,100**
Z0I	7/12/2000	ND	ND	0.0042	0.0025	NS	NS	ND	0.00433	<6.8	16.4	108	0.62	<0.57	59.2	8.4	76.1	0.29	180	<11	47.4
	7/11/2001	ND	ND	ND	ND	NS	NS	ND	ND	<1.0	14.4	121	<0.51	0.85	97.7	10.3	101	0.19	366	2.4	58.7
	7/18/2002	ND	ND	0.0045	0.011	NS	NS	0.0073	0.0266	<1.5	**26.4**	139	<0.75	<0.75	93.2	12.6	82.9	0.93	765	6.5	74.6
	7/23/2003	ND	ND	ND	ND	NS	NS	ND	ND	<1.4	**23.9**	143	<0.71	0.82	61.5	8.7	91.1	0.63	650	5.9	67.9
	12/3/2004	ND	ND	ND	0.0074	NS	NS	0.00091	0.0115	<1.5	**24.2**	174	<0.76	1.3	62.6	9.4	101	1.3	817	9	73
	8/10/2005	0.0037	ND	0.0052	0.0809	NS	NS	0.0115	0.378	<1.2	**22.8**	127	<0.61	<0.61	66.8	9.2	89.2	1.2	675	11	NS
	8/30/2006	0.0012	0.009	0.0017	0.00081	0.0014	ND	0.00082	0.0018	<2.2	7.4	48.3	<0.56	<0.56	68.1	5.8	46.4	0.21	112	<2.2	NS
	12/18/2007	ND	ND	ND	0.0012	0.0023	ND	0.0042	0.0022	<2.8	**28.3**	172	<0.69	1.2	78.1	12	122	1.6	999	10.9	NS
	11/26/2008	0.0021	ND	ND	0.001	ND	ND	0.0069	0.0024	<3.1	**25**	145	<0.76	<0.76	68.8	11.1	96.8	1.2	781	10.7	NS
	7/29/2009	ND	ND	ND	ND	ND	ND	ND	ND	<3.0	**53**	263	<0.75	1.1	60.8	10.9	160	2.3	1,200	17.5	NS
	7/22/2010	0.0043	ND	ND	ND	ND	ND	0.0057	ND	<2.1	9.8	35.1	0.45	<0.53	24	<5.3	7.4	0.035	12	<2.1	27.6
TZ	7/12/2000	ND	ND	3.2	ND	NS	NS	ND	ND	<6.6	15	80.3	0.68	<0.55	23.7	6.2	67.6	0.15	79	<11	48.1
	7/11/2001	**0.156**	ND	ND	0.643	NS	NS	0.308	**1,970**	2.8	17	155	<0.53	1.3	115	15.8	182	0.16	295	2.5	53.8
	7/18/2002	ND	ND	ND	ND	NS	NS	ND	0.0028	<1.1	11.9	61.8	<0.57	<0.57	36.6	6.2	42.3	0.29	198	1.7	33
	7/23/2003	0.0069	ND	0.0088	0.0445	NS	NS	0.0161	0.17	<2.0	**44.6**	236	<0.99	1.6	81.2	12.5	142	2	1,190	13.7	**110**
	12/3/2004	ND	ND	0.00094	0.00062	NS	NS	0.00053	0.0021	<1.1	7	34.2	<0.53	<0.53	21.7	5.5	19.7	0.15	35	<1.1	21
	8/10/2005	0.005	0.0782	0.0037	0.0432	NS	NS	0.0166	0.179	<1.2	18.5	101	<0.60	<0.60	45.1	7.5	66.1	1.3	568	9.9	NS
	8/30/2006	ND	ND	ND	ND	ND	ND	ND	ND	<2.1	<2.1	<21	<0.53	<0.53	5.1	<5.3	8.1	<0.033	<4.2	<2.1	NS
	12/18/2007	ND	ND	ND	0.0021	0.0025	ND	0.0077	0.0051	<2.9	**31**	195	<0.73	1.4	84.1	12.4	142	1.6	1,210	13.3	NS
	11/26/2008	0.0033	ND	ND	ND	ND	ND	0.0068	ND	<2.8	**27.2**	153	<0.70	<0.70	75.3	9.1	102	1	820	10	NS
	7/29/2009	ND	0.0594	ND	ND	ND	ND	ND	ND	<3.4	**48**	235	<0.84	1.1	70.8	12.3	141	2.5	1,280	18.2	NS
	7/22/2010	ND	ND	ND	ND	ND	ND	ND	ND	<2.2	7.1	26.9	0.39	<0.54	16.1	<5.4	12	0.063	12	<2.2	23.8
UZ	7/12/2000	ND	ND	ND	ND	NS	NS	ND	ND	<6.6	6.6	<22	<0.55	<0.55	28.8	<5.5	16.8	0.088	26	<11	15.9
	7/11/2001	ND	ND	ND	ND	NS	NS	ND	ND	<1.2	7.6	63.4	<0.59	<0.59	26.7	<5.9	35.5	0.066	59	1.2	28.9
	7/18/2002	ND	ND	ND	ND	NS	NS	ND	ND	<1.1	3.1	<22	<0.55	<0.55	8.1	<5.5	9.6	0.069	8	<1.1	11.2
	7/23/2003	0.0031	ND	ND	0.0107	NS	NS	0.0043	0.0333	<1.6	**21.1**	448	<0.79	<0.79	56.5	11.9	80.8	0.89	593	5.7	61.3
	12/3/2004	ND	ND	0.0014	ND	NS	NS	0.00056	0.002	<1.1	**20.1**	38.4	0.57	<0.54	23.6	<5.4	36.5	0.15	63	<1.1	30.8
	8/10/2005	ND	ND	ND	ND	NS	NS	ND	ND	<1.0	7.2	26.1	<0.52	<0.52	13.6	<5.2	14.1	<0.033	11	2.5	NS
	8/30/2006	ND	ND	ND	ND	ND	ND	ND	ND	<2.2	<2.2	<22	<0.55	<0.55	5.8	<5.5	<2.2	<0.033	<4.4	<2.2	NS
	12/18/2007	ND	ND	ND	0.0028	0.0027	ND	0.0087	0.007	<2.9	**34.8**	223	0.97	1.4	90.2	17.1	202	1.4	1,200	13.7	NS
	11/26/2008	0.0034	ND	ND	0.0043	0.00055	ND	0.0096	0.0207	<2.6	**25.3**	148	<0.64	0.67	65.2	9.2	99.9	0.74	789	10.1	NS
	7/29/2009	ND	0.029	ND	ND	ND	ND	ND	ND	<6.6	**41.3**	196	<0.82	<1.6	87.8	14.2	167	1.8	1,190	23.4	NS
	7/22/2010	ND	0.0035	ND	ND	ND	ND	0.00049	ND	<2.2	7	86.1	0.36	<0.54	19.4	<5.4	8.8	0.066	13	<2.2	18.6

All Data in mg/kg unless otherwise noted.
ND - Not Detected
NA - Not Applicable
NS - Not Sampled

Table 22
Soil Sampling Summary
No. 1 Landfarm
Hess - Port Reading Refinery
750 Cliff Road
Port Reading, New Jersey

		General Chemistry					Base Neutrals															
Sample Location	Sample Date	Nitrogen, Total Kjeldahl	pH	Specific Conductivity	HEM Oil and Grease	Solids, Percent	Benzenethiol	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Butyl benzyl phthalate	Chrysene	Dibenzo(a,h)anthracene	bis(2-Ethylhexyl)phthalate	Fluoranthene	Indene	1-MethylNSphthalene	6-Methyl Chrysene	Naphthalene	Phenanthrene	Pyrene
IGWSRS		**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**16**	**NA**	**NA**
RDCSRS		**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**17,000**	**0.6**	**0.2**	**0.6**	**6**	**1,200**	**62**	**0.2**	**35**	**2,300**	**NA**	**NA**	**NA**	**6**	**NA**	**1,700**
NRDCSRS		**NA**	**NA**	**NA**	**NA**	**NA**	**NA**	**30,000**	**2**	**0.2**	**2**	**23**	**14,000**	**230**	**0.2**	**140**	**24,000**	**NA**	**NA**	**NA**	**17**	**300,000**	**18,000**
Z0I	7/12/2000	669	7.3	3,390	17,000	88.2	NS	2.66	**1.15**	**0.711**	ND	ND	ND	2.87	ND	1.26	1.19	NS	8	NS	ND	22.7	5.23
	7/11/2001	1,790	6.7	4,920	30,700	90.6	1.54	1.94	**3.49**	**3.2**	**2.07**	0.441	ND	7.41	ND	1.25	2.32	0.226	2.83	2.57	ND	12.4	10.8
	7/18/2002	5,920	7.74	359	17,100	66.6	0.986	ND	**1.22**	**1.23**	**0.613**	ND	ND	3	**0.403**	0.973	0.397	ND	3.67	ND	0.386	4.45	3.6
	7/23/2003	5,100	6.3	5,920	7,170	70.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/3/2004	5,520	7.44	3,760	16,200	64.8	1.07	0.391	0.556	**1.2**	0.494	ND	ND	2.45	ND	0.82	0.169	ND	ND	0.833	0.27	1.05	2.27
	8/10/2005	5,090	6.34	4,600	21,700	81.6	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/30/2006	372	7.78	1,430	4,510	91.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/18/2007	6,670	7.2	2,290	8,210	69	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/26/2008	4,940	6.71	2,670	9,340	65.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/29/2009	9,220	5.42	1,090	11,500	65.4	1.56	0.559	ND	ND	ND	ND	ND	ND	ND	0.432	ND	ND	ND	ND	0.0564	0.211	0.215
	7/22/2010	277	5.36	56	<510	94.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0873	ND	ND	ND	ND	ND	ND	ND
TZ	7/12/2000	880	7.7	2,140	1,580	90.1	NS	47.6	**133**	**89.8**	**154**	116	ND	**269**	ND	**65.7**	111	NS	ND	NS	ND	142	279
	7/11/2001	3,120	7.8	1,870	44,600	88	1.16	3.34	**7.02**	**5.71**	**3.65**	0.971	ND	13.4	ND	1.9	4.82	0.564	19.6	4.42	2.54	24.4	18
	7/18/2002	1,390	7.19	373	7,410	87.2	0.388	1.67	**1.88**	**1.88**	**1.65**	0.544	ND	3.15	ND	0.305	2.59	ND	3.88	ND	0.373	6.88	5.05
	7/23/2003	11,300	8.6	6,070	11,000	49.7	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/3/2004	319	8.79	1,140	623	91.8	0.0363	0.0268	0.0519	0.0616	0.077	0.035	ND	0.124	ND	0.228	0.0587	ND	ND	0.0674	0.0406	0.0777	0.126
	8/10/2005	2,860	8.18	2,540	8,050	85.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/30/2006	104	4.72	839	<570	91	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/18/2007	5,670	6.81	2,340	7,510	69.5	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/26/2008	4,580	6.58	3,330	11,500	70.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/29/2009	7,500	5.76	1,400	7,360	59.9	1.22	0.396	ND	ND	ND	ND	ND	ND	ND	0.207	0.126	ND	ND	ND	0.0415	0.132	0.274
	7/22/2010	87.4	6.11	1	<530	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
UZ	7/12/2000	305	7.4	1,130	1,040	90.6	NS	21.2	**56.7**	**53.2**	ND	ND	ND	**110**	ND	ND	63.2	NS	ND	NS	ND	63.1	156
	7/11/2001	662	6.9	1,620	3,410	84	0.165	0.48	0.593	**0.567**	0.338	ND	ND	1.46	ND	0.195	0.433	ND	1.9	ND	0.18	3.3	1.75
	7/18/2002	117	6.93	62	629	91	ND	ND	ND	ND	0.04	ND	ND	0.0798	ND	ND	ND	ND	ND	ND	ND	ND	0.057
	7/23/2003	4,980	7.27	3,330	6,120	64.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/3/2004	414	8.88	1,020	1,070	90.6	0.0627	0.155	0.314	**0.309**	0.262	0.167	ND	0.379	ND	0.117	0.488	ND	ND	0.199	0.0574	0.489	0.597
	8/10/2005	156	8.74	603	<530	93.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	8/30/2006	38	7.93	767	<600	91.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	12/18/2007	5,070	6.62	2,500	10,500	68.1	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/26/2008	3,700	6.86	3,050	18,300	77.4	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	7/29/2009	7,460	5.71	1,710	9,680	59.1	1.42	0.398	ND	ND	ND	ND	ND	ND	ND	0.22	0.125	ND	ND	ND	0.0399	0.156	0.609
	7/22/2010	117	5.23	19.3	286,000	90	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

All Data in mg/kg unless otherwise noted.
ND - Not Detected
NA - Not Applicable
NS - Not Sampled